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THE PROCEEDINGS OF THE DPE (RESEARCH TRAINING) CONFERENCE (DETROIT, MICHIGAN, MARCH 1965).

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PUB DATE 65

EDRS PRICE MF-$0.75 HC-$5.40 133P.

DESCRIPTORS- *CONFERENCES, *RESEARCH METHODOLOGY, RESEARCH PROJECTS, *BUSINESS EDUCATION, *DATA PROCESSING, *SECRETARIES, STENOGRAPHERS,

SIXTEEN MEMBERS OF THE DELTA PI EPSILON PARTICIPATED IN A 3-DAY CONFERENCE (1) TO DEVELOP TWO POTENTIALLY FUNDABLE RESEARCH PROPOSALS THAT COULD BE UNDERTAKEN NATIONALLY BY DELTA PI EPSILON, AND (2) TO ENCOURAGE PARTICIPANTS AND CHAPTERS TO PROMOTE SIMILAR RESEARCH AND RESEARCH TRAINING CONFERENCES. THE TWO RESEARCH PROPOSALS SUBMITTED TO THE U.S. COMMISSIONER OF EDUCATION WERE "CURRICULAR IMPLICATIONS OF AUTOMATED DATA PROCESSING FOR EDUCATIONAL INSTITUTIONS" AND "FACTORS ASSOCIATED WITH SUCCESSFUL ADAPTATION TO THE SECRETARIAL-STENOGRAPHIC ROLE." THE FIRST PROPOSAL INCLUDED THE ANALYSIS AND EVALUATION OF INTEGRATED DATA PROCESSING TRAINING PROGRAMS IN SELECTED EDUCATIONAL INSTITUTIONS AND A STUDY OF EMPLOYEES IN THE INTEGRATED DATA PROCESSING PROGRAMS IN SELECTED BUSINESS OFFICES TO DETERMINE THE COMMON BODY OF KNOWLEDGE NEEDED. THE SECOND PROPOSAL PLANNED TO STUDY EXPECTATIONS OF SECRETARIAL BEHAVIOR WHICH ARE HELD BY THE SECRETARIES STENOGRAPHERS' SUPERVISORS, BY THE SECRETARIES' PEERS, AND BY THE SECRETARY HERSELF. RELATED VARIABLES TO BE STUDIED WERE--(1) GENERAL EDUCATIONAL BACKGROUND, SPECIAL VOCATIONAL PREPARATION, OCCUPATIONAL EXPERIENCE, SKILLS AND KNOWLEDGES, PERSONALITY CHARACTERISTICS, AND SOCIAL CHARACTERISTICS OF THE SECRETARY'S, AND (2) CHARACTERISTICS OF THE GROUP AND THE SETTING IN WHICH THE SECRETARY WORKS. A MANUAL DESCRIBING THE PROCEDURES FOLLOWED BY THE GROUP AND SUGGESTED PROCEDURES TO BE USED IN DRAFTING A RESEARCH PROPOSAL WAS DEVELOPED BY A COMMITTEE. A REGIONAL CONFERENCE FOR SPONSORING RESEARCH TRAINING WAS PLANNED. THE TWO RESEARCH PROPOSALS, A PROPOSAL FORM, SUGGESTIONS FOR HOLDING REGIONAL CONFERENCES, AND SUGGESTIONS FOR THOSE SEEKING FUNDS FOR RESEARCH ARE INCLUDED. (PS)

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THE PROCEEDINGS OF THE

1965 DPE RESEARCH TRAINING CONFERENCE

Bangs, Kenneth

March, 1965

Detroit, Michigan

PREFACE

The Research Committee wishes to acknowledge the excellent cooperation from the National Executive Board and especially the continuous effective support of Dr. Ruth Anderson. Without her suggestions and encouragement, this project would not have been started.

The initial idea and materials for this manual were the responsibility of Dr. Kenneth Bangs and other members of the Research Committee.

The responsibility for the final content as well as any errors of omission or commission are the responsibility of the Chairman.

TABLE OF CONTENTS

	Page
INTRODUCTION	1
Purposes	1
Procedures	1
Selection of Participants	1
Selection of Topics	2
Proposal A	4
Proposal B	4
Summary	6
DPE RESEARCH CONFERENCE, PARTICIPANT EVALUATION	7
Participant Evaluation Instrument	9
SUGGESTIONS FOR REGIONAL RESEARCH CONFERENCES	12
Purpose	12
Participants	12
Program	12
Program Patterns	13
REFERENCE MATERIALS FOR PARTICIPANTS IN REGIONAL CONFERENCES	14
SUGGESTIONS FOR THOSE SEEKING FUNDS FOR RESEARCH	15
NEW DEVELOPMENTS IN THE COOPERATIVE RESEARCH PROGRAM	18
Educational Laboratories	19
Eligible Programs	21
Application Procedures	22
Dissemination of Research Results	23
Educational Research Training Program	23
Undergraduate Research Training Projects	25
Graduate Research Training Projects	25
Postdoctoral Training Program	26
Institute Training Program	27
Special Training Projects	27
Program Development Grants	28
General Application Procedure	28
APPENDIX A [List of Committee A Participants]	
APPENDIX A1 [Committee A Discussion Proposal]	
APPENDIX A2 [Committee A Proposal Report]	
APPENDIX A3 [Committee A Draft Proposal to the USOE]	

TABLE OF CONTENTS (Continued)

APPENDIX B [List of Committee B Participants]

APPENDIX B1 [Committee B Discussion Proposal]

APPENDIX B2 [Committee B Proposal Report]

APPENDIX B3 [Committee B Draft Proposal to the USOE]

INTRODUCTION

The promotion of research is one of Delta Pi Epsilon's professional objectives. To strengthen this objective, the 1963 Council authorized the acceptance of a grant by the South-Western Publishing Company for a national "Invitational" research training conference. The National Research Committee designed a working conference with the emphasis on helping participants learn how to write research proposals by preparing several proposals for submission to appropriate funding agencies.

PURPOSES

A three-day conference was held in Detroit in March, 1965, and had the following major objectives:

1. To develop two potentially fundable research proposals that could be undertaken nationally by Delta Pi Epsilon.
2. To prepare a manual detailing the proceedings of the conference so that chapters could promote similar conferences in their geographic areas.
3. To encourage conference participants to return to their own chapters and promote a similar research training conference.
4. To encourage the conference particpants to utilize the ideas, knowledges and skills attained to prepare research proposals which could be submitted to appropriate funding agencies.

PROCEDURES

A. Selection of Participants

1. The participants were selected from a list of 100 nominees submitted by individual chapters, members of the National Council, and members of the Research Committee.
2. Each nominee had to meet the following criteria:

a. Research

1. Does independent research
2. Directs Research
3. Is interested in research

4. Is knowledgeable in research techniques and procedures

b. Characteristics

1. Is a doer

2. Is an organizer

3. Is a leader

c. Interaction

1. Communicates effectively

2. Shares ideas through writing or speaking

These criteria, specialized skills and geographic distribution were utilized by the Research Committee in making the final selection of 16 participants.

B. Selection of Topics. Each DPE Chapter was requested to submit research proposals that would serve as a spring board to the development of a potentially fundable project. Of the proposals submitted, the following were used for discussion purposes:

Group A.: THE NEED FOR EDUCATIONAL PROGRAMS IN BUSINESS DATA PROCESSING

Group B.: A QUALITATIVE ANALYSIS OF SECRETARIAL DUTIES AND TRAITS.

Participants in the conference recieved copies of a suggested outline for the two topics selected for discussion before their arrival at the conference. Each participant was told which project he was to work with so that he could do some preliminary thinking and reading on the topic. (Copies of the two proposals as they were distributed to the conferees are attached as Appendix A-1 and Appendix B-1.)

The participants were divided into two groups: Committee A, composed of two Consultants, two members of the Research Committee, the President, and seven members of DPE*, discussed THE NEED FOR EDUCATIONAL PROGRAMS IN BUSINESS DATA PROCESSING; and Committee B, composed of two Consultants, two members of

*See Appendix A and Appendix B for the names of all participants.

the Research Committee, the Vice President, and eight members of DPE, discussed A QUALITATIVE ANALYSIS OF SECRETARIAL DUTIES AND TRAITS.

Beginning Tuesday evening, March 9, the conferees devoted their time to working sessions during which they developed and wrote the two proposals. Also on Tuesday, the participants were introduced to the Consultants, and a brief orientation on the purpose and procedures for the rest of the week was made. The Research Committee had met previously with the Consultants to help develop the rapport necessary for the accomplishment of the goals of the conference. After the orientation meetings, the groups met with their assigned Consultants to begin discussions on the statement of the problem of each group.

The sessions began at 9:00 a.m. each day and continued until 5:00 p.m. After a two-hour dinner break, the conference sessions continued. The conference adjourned at 5:00 p.m. on Friday, March 12.

The rigorous schedule was highlighted early in the conference by three presentations and discussions on requirements for securing research funds.

Mrs. Sylvia McCullom, U. S. Office of Education, discussed the type of projects that were especially appropriate for funding from Vocational Education Funds.

Dr. Hollis Moore of the Kellogg Foundation explained the role of private foundations and emphasized the Kellog Foundation's interest in vocational education projects--especially at the community or junior college level.

Mr. Terry Hughes reacted to the above talks and described the facilitating role of an Office of Research Administration at a college or university.

As a result of the three days of working together, drafts of two potentially fundable studies were prepared. (These drafts are attached as Appendix A-2 and Appendix B-2.) These drafts were presented to the Executive Board of Delta Pi Epsilon with recommendations for procedures in having them presented to funding agencies.

PROPOSAL A

Committee A used as the basis of their discussions a proposed study entitled, THE NEED FOR EDUCATIONAL PROGRAMS IN BUSINESS DATA PROCESSING. The basic outline of this study was developed in considerable detail by the group, utilizing the specialized skills of the two consultants. At the end of the third day, a working draft was ready for review and refinement by the Principal Investigator. The Principal Investigator had the responsibility of completing the details that could not be done by a committee, such as a review of the appropriate research and the development of a budget. Dr. F. Kendrick Bangs, University of Colorado, was asked to serve as Principal Investigator for the study which was subsequently entitled, "Curricular Implications of Automated Data Processing for Educational Institutions." Dr. Mildred Hillestad, Colorado State College, will serve as Research Associate.

The objectives of this study, as stated in the proposal submitted to the Office of Education are:

> To determine the implications of integrated data processing for the preparation of office workers as it affects the development of office occupations curricula in public secondary and public posthigh institutions offering less than baccalaureate degrees. The main purpose of the study is to provide guidance for schools in evaluating existing programs and for establishing new programs in integrated data processing. Information compiled will also be of value to counselors in providing students with occupational information in the data processing field.

This is a proposed 21-month study, which, if funded, is to begin in the fall of 1965.

PROPOSAL B

Committee B's assignment was to study a preliminary draft of A QUALITATIVE ANALYSIS OF SECRETARIAL TRAITS AND DUTIES. The group used the preliminary draft as a point of departure and with the aid of the consultants

developed the outline of a proposed study. The final proposal is considerably different than the original working draft with which the group began its deliberations. At the end of the Conference, Committee B had also prepared a paper for review and refinement of the Principal Investigator. Again it was necessary for the Principal Investigator with the aid of consultants to develop related readings, specialized procedures and a specific budget based upon the unique requirements of the specific location in which the research was to be conducted. Because of the uniqueness of this particular study, it was decided to label it a pilot study and confine the scope until instruments and procedures could be refined. Dr. Fred S. Cook, Wayne State University, is to serve as Principal Investigator. If this proposal is funded by some agency, he will have a social psychologist as research associate.

The objectives of this study are:

> To analyze the secretarial role with the anticipation that findings will be produced which will (1) serve as a basis for revision and updating of current curricula for stenographic/secretarial (hereafter referred to as s/s) education, and (2) focus attention upon the situational variables which contribute to s/s success or failure. In a very real sense, the quality of s/s education is tied to the quality and extent of research findings which are available for the building of educational programs.
>
> To determine the expectations associated with the successful fulfillment of the s/s role. At least three basic perspectives must be studied: those expectations of secretarial behavior which are held by the s/s' superiors, by the s/s' peers, and by the secretary herself.
>
> In brief, the major behavior (or variable) with which this study is concerned is the degree of "stenographic/secretarial success," consensually defined.

The title of the revised proposal is "Factors Associated with Successful Adaptation to the Secretarial-stenographic Role." It is envisioned as a two-year pilot study and, if funded, is to begin on January 1, 1966.

SUMMARY

The first objective was to prepare two potentially fundable research proposals. The two proposals described above have been submitted to the UOSE for funding. Proposal A has been approved; Proposal B is in the process of being reviewed by the USOE.

The second objective was to prepare a manual outlining the procedures and proceedings of this first research training conference of Delta Pi Epsilon. Dr. Kenneth Bangs with the help of a special committee developed these materials which describe the proceedings we followed and make suggestions for drafting a research proposal.

The third objective was to encourage DPE chapters to sponsor similar research-training conferences in their geographic areas. One such regional conference has already been planned by three participants from Alabama, Florida, and Tennessee.

DPE RESEARCH CONFERENCE, March 9-12, 1965

Participant Evaluation[1]

This is a brief summary of the conference evaluations by the participants. At the conclusion of the conference, the participants were asked to make a critical evaluation of the conference. Each person was given a questionnaire[2] to be filled out on an anonymous basis. This summary is based on the answers given by the participants to the various items in the questionnaire. The only breakdown which is used concerns the work group to which the participants were assigned. Group A was charged with the study proposal on "Data Processing" and Group B with the "Secretaries" proposal. There were seven respondents in Group A and nine in Group B. Committee members and consultants are excluded from this analysis.

All of Group A and all but one in Group B expressed very high satisfaction with the conference. However, more people in Group B felt that they learned a great deal from the conference, five out of nine versus two out of seven in Group A. Five out of seven in Group A felt they learned "some." The most frequent item that was mentioned in terms of "what was learned" relates to the role played by consultants in the conference, although here, various specific features were mentioned.

Answers to the question dealing with the perceived role of research specialists indicate that most people would refer several aspects of their research to a specialist, preferably to work together with the specialist. Three members out of each group indicated that this conference contributed to their understanding of some of their own limitations in survey research.

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[1]This report was prepared by Dr. Rashid Bashshur, University of Michigan, Consultant to Committee B.

[2]A copy of the questionnaire follows this report.

Answers to the question of how much the conference accomplished in terms of stated objectives show six participants out of each group indicating that the "objectives were partially accomplished." Most reasons given for this are related to a time factor. On the other hand, most participants indicated that the objectives were "realistic and attainable for the time allotted to the conference."

Almost everybody had an understanding that the major objective of the conference was to develop fundable proposals. A few other objectives were mentioned such as to learn research techniques and proposal writing, to prepare procedures manual and to work with research specialists.

Of the worthwhile accomplishments, the majority in each group indicated the attainment of "two research proposals." Four participants in Group B and one in Group A indicated "exchange of ideas," and two participants in each group said they "learned about proposal writing and research procedures." Answers to a question on unworthwhile things that the conference indulged in suggest a much higher level of conference appreciation in Group B than in Group A. Six out of nine in Group B thought it was all worthwhile versus only one in Group A who had a similar opinion. "Two much small talk," "decisions too slow," and "wasted effort" were mentioned singly by participants in Group A. Other things mentioned did not relate to the proceedings of the conference as such. Instead, a few complained about the location of the hotel, poor accommodations, and the lack of free time.

DPE RESEARCH CONFERENCE, March 9-12

Participant Evaluation

This is an attempt to objectively evaluate accomplishments as well as shortcomings of this conference. Please try to give explicit and candid answers to the questions. Your answers will be treated on a group basis and reported in a statistical form only. Therefore, the identity of the writer will be held completely c-nfidential. The only identification requested is the group in which you participated:

Check one: _____A, Data Processing _____B. Secretaries

1. Generally speaking, how well did you like this conference?

   Check one:

   _____ Liked it very much

   _____ Liked it some

   _____ Indifferent

   _____ Didn't like it

   _____Didn't like it

2. Would you say that you have learned anything now, such as new ideas, approaches, techniques, etc., as a result of your attending this Conference?

   Check one: _____ Yes, a lot _____ No

   _____ Yes, some

   _____ Yes, but very few

   IF YES, describe very briefly.

3. Which of the following research functions would you rather do yourself or which ones would you refer to a specialist or consultant?

	Do myself	Refer to Specialist	Reasons (Use back of sheet if necessary)
a. Definition of the research problem	_____	_____	_____
b. Writing of the proposal	_____	_____	_____
c. Drafting questionnaire or research instrument	_____	_____	_____
d. Sample design	_____	_____	_____
e. Code writing	_____	_____	_____
f. Field work	_____	_____	_____
g. Data analysis	_____	_____	_____
h. Final report writing	_____	_____	_____

3a. Would your answer to the above questions have been different before you attended the Conference?

_____Yes _____No

IF YES, how?_____

4. In terms of your understanding of the basic objectives of this conference, how much was actually accomplished?

_____ Objectives totally accomplished

_____ Objectives partially accomplished

_____ Objectives not fulfilled at all

Why would you say so?

5. Were the objectives realistic and attainable for the time allotted to the Conference?

_____ Yes _____ No

6. In your opinion, what was (were) the major objective (s) of this conference?

7. Thinking of what the conference might desirably have accomplished, what it actually did accomplish, and what it might have accomplished but did not:

   a. What would you consider worthwhile accomplishments?

   b. What did the conference indulge in but was really not profitable or worthwhile?

   c. What basic changes would you suggest if you were to organize a similar conference?

8. If you are invited to plan a national conference on research for Delta Pi Epsilon for the coming year, specifically what program and/or content would you recommend for such a conference?

9. Please write any other comments or suggestions on the back of this page.

SUGGESTIONS FOR REGIONAL RESEARCH CONFERENCES

One of the purposes of the Research Conference was to encourage the Delta Pi Epsilon conferees to return to their regions and to promote a research conference similar in nature to the National Research Conference.

Suggestions and alternate plans for regional research conferences follow:

PURPOSE

The purposes of the regional meetings are:

1. To alert business educators to the availability of funds for research in their segment of vocational education, and
2. To stimulate business educators' interest in developing proposals worthy of funding.

PARTICIPANTS

The regional meetings may be held for any of the following audiences:

Group A. Delta Pi Epsilon Regional Leadership (Executive Board Members, Sponsors, former Presidents, or other members trainable for local presentations) in areas where regional inter-chapter meetings are impractical.

Group B. Delta Pi Epsilon Inter-Chapter or Chapter Membership.

Group C. Area high school or college representatives before whom DPE can assume a leadership role.

PROGRAM

The following types of speakers are suggested as speakers and staff for the regional meetings;

A participant in the National Delta Pi Epsilon Research Conference should be used as the chief resource person.

A representative from the U. S. Office of Education, Division of Vocational and Technical Education, Occupational Research and Planning Program. The representative should be asked to speak on such things as: information about the status of the program, kinds of research that are fundable, deadlines for submission of proposals, etc.

A representative from a college research services center. He should be asked to speak about such things as; information about status of programs, communication, advice on format, budget, or personnel requirements.

A local grant recipient. He should be asked to speak on: information about his procedures, pitfalls in the proposal and study, ways to attract persons to do research, etc.

PROGRAM PATTERNS

Four program patterns are suggested for adaptation to local needs:

PROGRAM A (designed for a half-day program for Groups B and C indicated above,)

Basic Definition of a Fundable Project under the Vocational Education Act for national and state projects.

Evaluation of a Sample Proposal in light of criteria distributed.

PROGRAM B (designed for half-day program for Groups B or C described above.)

Basic Definition of a Fundable Project under the Vocational Education Act for national and state projects.

Suggestions for Preparing a Proposal (To be presented by a college research officer, grant recipient, or national conference participant.)

PROGRAM C (designed for a full day for Groups A, B, or C described above.)

Basic Definition of a Fundable Project under the Vocational Education Act for national and state projects,

Suggestions for Preparing a Proposal. (To be presented by a college research officer, grant recipient, or national conference participant.)

Evaluation of a Sample Proposal in the light of criteria distributed.

PROGRAM D (designed for a weekend for Groups A or B described above.)

Basic Definition of a Fundable Project under the Vocational Education Act for national and state projects.

Suggestions for Preparing a Proposal. (To be presented by a college research officer, grant recipient, or national conference participant.)

Evaluation of a Sample Proposal in the light of criteria distributed.

Rewrite of a Proposal

Evaluation of Proposals Prepared by Participants.

REFERENCE MATERIALS FOR PARTICIPANTS IN REGIONAL CONFERENCES

OE-4262 - Conditions and Procedures: Grants for Research, Training, Experimental, Developmental, or Pilot Programs in Vocational Education (HEW) - Superintendent of Documents, U. S. Governments Printing Office.

OE-80035 - Preliminary Statement of the Guidelines for Occupational Research and Planning Program.

Krathwohl, David. "The Preparation of Research Proposals--Suggestions for Those Seeking Funds for Education Research." (Bureau of Educational Research Services, Michigan State University, East Lansing, 50 cents.)

Loma, Paul, and Wilson, Harmon. "Improving Research in Business Education," Monograph 105, South-Western Publishing Company, 1962.

Back and current issues of: BUSINESS EDUCATION FORUM, JOURNAL OF BUSINESS EDUCATION, AVA JOURNAL, BALANCE SHEET, and BUSINESS EDUCATION WORLD.

A text on research methodology.

SUGGESTIONS FOR THOSE SEEKING FUNDS FOR RESEARCH

The Research Conference gave the conferees many ideas and suggestions for seeking funds for educational research. Many of the ideas were obtained from the guest lecturers and the first three references listed on the preceding page.

Selected information and criteria for submission of a research proposal for funding are presented in this manual because of their particular application to the subject of preparing research proposals for funding.

The importance of a research proposal is apparent when one realizes that in most instances the funding decision is made on the basis of the document as it is submitted. The quality of writing in the proposal is likely to be used by the reviewers as a basis for judging both the clarity of thought with which the proposal will be implemented and the skill of presentation which the investigator reveals his scholarship--how well he knows the literature of his field, how well he brings it to bear on his own problem, how cognizant he is of appropriate experimental designs, how he fits his problem into the larger picture and perceives its implications.

Most of those with funds to disburse for research seek about the same kinds of information to judge the projects submitted to them. Some will require the use of an application blank, others supply an outline to be followed[1], and still others leave the form of presentation entirely to the proposal writer. The material following is based on that suggested by the U. S. Office of Education.

1. The proposal should be within the scope of the grantor's program.

2. At the Federal level, proposals are reviewed by a panel of professionals who meet once every three months. There is a possibility that grants up to $25,000 may be approved at the staff level. Because the reviewing panel probably includes persons unfamiliar with the field of business education, the proposal must be

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[1]See OE-4262 (listed on the preceding page under--REFERENCE MATERIALS FOR PARTICIPANTS IN REGIONAL CONFERENCES) for specific formats.

written to communicate with both specialists and non-specialists. Since the panel members may receive more than a hundred proposals for review prior to a review session, the importance of the quality of the presentation cannot be overemphasized. The panel usually operates under time pressures. A critical review by others or by the author after the lapse of several days may reveal flaws in the presentation.

3. The person who presents a proposal, especially if he is relatively new to the field, must provide evidence of his competency to undertake the project.

4. The problem to be funded should be generally beyond the local scene in scope.

5. After the statement of the problem, in very specific form, indicate objectives, hypotheses, and questions. The step-by-step procedure to be used in solving the problem must be outlined. The population and sample must be chosen in such a way that they provide bases for generalization. If using stratification, area sampling, or cluster sampling, give information about the bases for selection. Randomness is essential for any research to have statistical significance. The design of the study should include the statement of the techniques to be used in executing the study, copies of the pertinent instruments, and research tools.

6. The Related Research section should cite about five sources of special importance. Discuss the proposed study in relation to previous and on-going research, and state how the study will extend the body of knowledge about the area. Point out what will be distinctive or different about the proposed research as compared with previous research.

7. The Time Schedule must be indicated in chronological order so that the length of time required for each major aspect of the study is known. The starting date should be set at least 3 to 4 months after the submission date, since in most instances it takes about three months for the review process alone. After this, there is a delay before the project is contracted or the official grant made. If the work begins before that date, indicate how it will be financed.

8. Research experience of the personnel participating in the study should be described. Listing persons as participants in a research project without their permission is unethical. A roster of personnel should be in readiness if and when the project is funded.

9. Special facilities and equipment which are available to the project should be given. List the available consultation, data processing, buildings, equipment, and other special facilities. Evidence (copies of correspondence) of the cooperation of schools and agencies that will be involved should be included with proposal.

10. The Budget is an operational statement in monetary terms. Grants are typically for a year of work only, subject to review, negotiation, and renewal each year. One way of handling a large project is to describe the overa-l plan in phases. If support is requested for the entire period, the panel is reluctant to approve the entire amount. This permits them the option of sponsoring the early phases so that the researcher may prove his mettle. Another way is to ask for a small sum of money for a pilot project. Panels are often eager to get new researchers perhaps from smaller and less well-known schools started on research if the project is one that is manageable and does not ask the panel to risk large sums.

11. Use the services of designated personnel in your institution in preparing your proposal. They are aware of costs of interviews, pay rates of different types of personnel, space, and so forth.

NEW DEVELOPMENTS IN THE COOPERATIVE RESEARCH PROGRAM[1]

One of the fastest growing programs in the U.S. Office of Education is the Cooperative Research Program. Started on a small scale in 1954, this pro-ram has expanded steadily in recent years. The passage of the Elementary and Secondary Education Act of 1965 (Public Law 89-10) earlier this year provided the impetus for a much broader expansion in the future.

Title IV of the Elementary and Secondary Education Act rewrote and enlarged the 1954 Cooperative Research Act. The purpose of this new legislation, as stated in House and Senate Committee reports, is "to provide a broader base for the support of research and development programs designed to insure that quantitative increases in education are accompanied by vastly improved quality."

The 1954 Cooperative Research Act authorized the Commissioner of Education to enter into contracts or jointly financed cooperative arrangements with universities, colleges and State educational agencies to conduct research, surveys and demonstrations in the field of education. The new act provides for grants as well as contracts for research and demonstrations: authorizes grants and contracts for the dissemination of information resulting from research; permits awards to be made to public or nonprofit private agencies, institutions or organizations and to individuals and provides grants for training in educational research. Finally, the new act authorizes the appropriation of $100 million over a five-year period for construction and operating regional laboratories for research in education. The laboratories may include experimental schools.

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[1]AMERICAN COUNCIL ON EDUCATION, "Special Report on Federal Programs," A Monthly Bulletin prepared by the Commission on Federal Relations. Betty Pryor, Editor, Vol. III (August, 1965), No. 7, *in toto*.

Chiefly as a result of the new act, funds for the Cooperative Research Program will be increased from the $15.8 million which was appropriated for Fiscal Year 1965 to expected $70 million for Fiscal 1966.

The program is administered by the Office of Education's Bureau of Research and is coordinated with separate research programs in vocational education and the education of handicapped children. All told, the USOE expects to spend $100 million on educational research in this fiscal year, compared with only about $5 million five years ago.

Earlier developments in the Cooperative Research Program were described in previous issues of the Special Report on Federal Programs (Volume I, Numbers I and 7). This issue will discuss the new provisions for the National Program of Educational Laboratories and the training program for educational research personnel.

Educational Laboratories

The regionally based educational laboratories are intended to be the "seedbed" for new ideas and new programs that can be tested in schools associated with them, according to Education Commissioner Francis Keppel. The Laboratories will be directed towards the identification of educational problems and realistic solutions to them. They are expected to help train teachers and research personnel and to improve curricula.

The prototype for the laboratories is found in research and development centers supported by the Office of Education. Four such centers have been established since 1964 and five others will be added later this year. The four existing centers are located at the University of Pittsburgh, University of Oregon, University of Wisconsin and Harvard University. Each concentrates on a different area of research. The USOE will continue to accept proposals from individual institutions of higher education for the establishment of research and development centers.

While each research center is sponsored by a single university, a research laboratory will be established by a group of agencies and institutions. The group may include a university or several colleges and universities, a local school system or systems, and a State education department or departments. It could also include professional associations, foundations and representatives of business, the arts and labor organizations. Each laboratory is expected to serve the region in which it is located and thus will in many cases involve the resources of several states.

The USOE expects six to eight laboratories to be established within the first year and eventually to have laboratories in all parts of the United States. The laboratories will conduct a wide range of programs including basic and applied research, curriculum improvement and evaluation, development of promising innovations, demonstrations of noteworthy practices, training activities, research information centers and consultation services. Each laboratory will be responsible for disseminating research results in its own area and the USOE will disseminate the information on a nationwide basis.

Generally, the subject areas for each laboratory's research will be determined by the sponsoring group, although the USOE may stimulate proposals in any fields which may be neglected. Since each laboratory is supposed to meet the needs of its particular region, the laboratories may differ from each other. Each laboratory may conduct research in higher and adult education as well as in elementary and secondary education.

The USOE has issued guidelines for developing proposals for the laboratories. Applications must follow a two-step procedure--first the submission of a prospectus and then a full-scale request for a grant. The USOE

encourages prospective applicants to consult with it before submitting a prospectus. Inquiries may be addressed to:

Division of Laboratories and Research Development
Bureau of Research
U. S. Office of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

The USOE has set October 15, 1965, as the first deadline for submitting prospectuses. Interested groups which wish to apply for a laboratory grant during Fiscal Year 1966 but are unable to complete a prospectus by October 15 should submit a letter by that date indicating the scope and status of any activities which might lead to the filing of a prospectus. A letter of interest is not binding upon either the USOE or the interested group.

Later deadlines will be set for receiving prospectuses from groups wishing to establish laboratories during Fiscal 1967.

Prospectuses and letters of interest are submitted to the Bureau of Research in the Office of Education.

Eligible Programs: Program eligible for Federal funds include:

1. Interim activities leading to the establishment and full development of a laboratory.

2. An educational laboratory providing an across-the-board program of research, research-related activities, curriculum improvement, and the implementation of research findings through a variety of dissemination and service functions in the region in which it is located.

3. Special large-scale research or service projects to complement or supplement the activities of the Laboratory Program.

In general, the USOE will underwrite the entire operating costs of a laboratory. The act permits the payment of part or all of the construction costs, which may include construction of a new building or expansion,

remodeling and alteration of an existing building site grading, off-site improvements and architects' fees, and also the cost of equipping the laboratories.

Application Procedures: As mentioned earlier, a prospectus must be submitted and approved before a formal application for a laboratory grant may be filed. Since the Laboratory Program requires much more emphasis on cooperation than the usual research program, the USOE requires applicants to demonstrate in their prospectus that they have obtained the commitment, cooperation and coordination of all elements in the applicant group. It requires, in particular, that local school systems of the region participate in the planning and operation of the laboratory.

A prospectus should cover about 50 double-spaced typewritten pages and should include: a statement of need for the proposed laboratory; the region it would serve; an outline of the research, development and dissemination programs; an inventory of resources and talents in the region; an outline of prior efforts in research or dissemination upon which a laboratory might build; a discussion of the relationship of the proposed laboratory to other educational research; an outline of the proposed organization of the laboratory and its physical facility requirements; and a projected gross budget estimate for five years, listing separately amounts for planning, operating costs, and construction costs. Twenty copies of a prospectus are required.

The USOE anticipates that it will take about 60 days to review a prospectus. As soon as a prospectus is approved, the USOE will furnish an applicant instructions and formats for submitting requests for program and construction grants. Because it may take as long as three months to develop a formal application for a laboratory grant, the USOE will consider requests for development grants to cover expenses involved in the preparation of an application.

Dissemination of Research Results: Since the purpose of the new research legislation is to improve the quality of education, the USOE is emphasizing dissemination of research results in order that this information may be spread widely through the educational system. As previously mentioned, each laboratory will be responsible for disseminating this information within its own region through demonstrations, training programs, conferences, seminars, publications and other means. An applicant's plans for channeling research results into the schools or colleges will be a major factor in the USOE's consideration of requests for laboratory grants.

The USOE's Educational Research Information Center (ERIC) will make the research results available on a nationwide basis. ERIC was created in May, 1964, as a clearinghouse for educational research literature, including both USOE-sponsored research and research conducted under other auspices. ERIC contracts with universities and research centers to acquire and abstract research documents. ERIC then screens, microfilms and stores those documents with the greatest relevance to the educational system and notifies interested segments of the educational community of their availability. Currently, about 10,000 documents are being processed and ERIC is concentrating on those which have not been previously published or have had only slight circulation. Through the use of microfilming and automatic data processing techniques, ERIC can make its information immediately available.

Educational Research Training Program

The newly revised Cooperative Research Act provides support, for the first time, for training in the field of research in education. The purpose of this program is to improve the quality of educational research and increase the supply of research personnel.

Training grants may be made to universities, colleges, State education agencies, local school systems, and other public and nonprofit private agencies, institutions and organizations, or to a combination of these institutions to support a program designed to develop research competency in any field related to education. At this writing, the final budget for the training program for Fiscal 1966 has not been settled, but it is expected to amount to approximately $8 million.

The grants may be made for a variety of purposes, including: establishing and maintaining traineeships, internships, personnel exchanges, institutes, undergraduate scholarships, graduate and postgraduate fellowships, and other training programs; and to strengthen or expand training staffs. Both long-term (up to five years) and short-term training projects are eligible for support. The grants will include funds for stipends and allowances for the trainees and for the instructional costs to the institutions.

The types of training that may be offered under the new program may vary greatly. They could include training in curriculum development, in tests and measurements, educational psychology, sociology, or new methods of teaching languages, mathematics and science. The Office of Education particularly encourages projects that "bridge the gap" between educators and professional personnel in other disciplines--for example, training programs for economists on the economic effects of investment in education. The USOE plans to give priority to projects that (1) combine training and research; (2) represent joint efforts of departments, schools or colleges of education and science, arts or humanities departments; or (3) include promising innovations in the training of researchers.

The USOE plans to issue instructions and guidelines for preparing applications in September, and has set December 1, 1965 as the first deadline for

submitting applications. Inquiries may be addressed to, and application instructions obtained from:

Director
Division of Research Training
and Dissemination
U. S. Office of Education
400 Maryland Avenue, S. W.
Washington, D. C. 20202

Six general types of training projects that may be supported under the new program are discussed separately below.

Undergraduate Research Training Projects: These projects are intended to attract outstanding undergraduate students to the field of educational research, to give them some research experience, and to encourage them to pursue graduate education in preparation for careers in educational research. Priority will be given to projects that emphasize independent study and active participation in research.

The USOE will support projects for full-time training during the summer, part-time training during the academic year, or both. Stipends up to $75 a week may be paid to each summer participant. The academic year participants are expected to spend an average of at least eight hours per week on research training and may receive stipends not exceeding $500 each. For both the summer and academic year programs, an institutional allowance, not exceeding the total paid to the students, may be requested without an itemized budget.

Graduate Research Training Projects: Graduate training projects likewise are intended to attract outstanding students to the field of educational research, and also to help graduate schools develop or expand programs leading to advanced degrees in disciplines relevant to educational research.

Fellowships may be awarded to full-time graduate students who show exceptional scholarship, high potential as researchers, and an interest in

careers in educational research. Stipends for graduate students may be paid in the following amounts:

	12-months	9-months
First year	$2,400	$1,800
Intermediate years	2,600	2,000
Terminal year	2,800	2,200

Generally, graduate training programs are not expected to extend beyond three years, and students will be expected to study in the summers as well as the academic years.

For graduate students, dependency and travel allowances may be paid, but no allowance is provided for the travel of dependents or moving household goods.

A cost-of-education allowance of $2,500 will be paid to the institution for each graduate student in its research training program.

Postdoctoral Training Program: The Postdoctoral Training Program has the dual purpose of up-dating the research competence of persons who received their training some years ago and of acquainting trained researchers in other fields with research in education.

Postdoctoral programs are expected to be tailored to the individual needs of the institutions and participants, with the participants selected on the basis of unusual career achievements, their interest in educational research and their potential for outstanding contributions. Postdoctoral grants may be used to pay the salaries, up to the limits stated below, of college and university professors on sabbatical leave, provided the professor participates in an approved educational research training program.

In general, postdoctoral grants will be made for either an academic year or a calendar year, but grants for longer periods may be considered in exceptional cases.

Stipends for participants in postdoctoral programs are based on the salaries that would have been paid by their home institutions for the project period. No dependency allowances are provided, but a travel allowance is permitted for one round trip from the trainee's home. An allowance of up to $1,000 per trainee may be paid to the institution.

Institute Training Program: The institute program is designed to provide short-term, intensive training in some aspect of research. Generally, they will offer refresher courses to meet some immediate need. An institute may be focused on any area or specialization related to educational research and on any level of research competence. Priority will be given to institutes that emphasize an understanding of basic analytical methods rather than a review of literature in a given area.

Institutes generally should not have more than 30 to 40 participants each, although in special cases the number could be considerably larger or smaller. Most are expected to last six to ten weeks, although they could be of any duration. Participants may receive stipends of $75 a week, with reduced amounts for those living at home during the institute period. Allowances of $15 a week per dependent are provided and a travel allowance for each participant.

The USOE will underwrite the direct operational costs of an institute, as outlined in an approved budget, and indirect costs amounting to no more than eight percent of direct costs.

Special Training Projects: The category of Special Training Projects includes any seminars, courses of instruction, workshops, internships, in-service training programs or other non-degree programs that do not fit the pattern of the institute program. Most special projects are expected to

convey a given body of knowledge to a specified group of trainees, and to last from a week to a month. The number of participants may vary from a few key staff members to an entire staff if all would benefit from the training.

A special Training Project may be conducted by a single agency or through a cooperative arrangement with another institution, such as an arrangement between a State education department and a college or university. Financial arrangements generally are similar to those for institutes.

Program Development Grants: The purpose of Program Development Grants is to strengthen staffs and the curricula for training in educational research. Such grants could be used to pay part of the salaries of specialized staff personnel, to expand the training staff, to pay part or all of the cost of materials, equipment and services necessary to conduct the training program, and for pilot programs to explore new approaches to training in a given area of research.

Program Development Grants may be awarded for any length of time up to a maximum of five years.

General Application Procedure: Applications for Educational Research Training Grants consist of five parts:

1. An application form.
2. A brief summary of the proposal.
3. A narrative description of the proposal.
4. Biographical sketches of key staff members for the project.
5. A budget for the project.

Applications are filed with the Bureau of Research of the U.S. Office of Education, and 10 copies are required. All applications will be reviewed by the USOE staff and consultants drawn from the educational community.

APPENDIX A

1965 DPE RESEARCH CONFERENCE

COMMITTEE A PARTICIPANTS

Research Committee Members

Dr. James Marmas
St. Cloud State College

Dr. Eleanor Maliche
Wayne State University

DPE Officer

Dr. Ruth Anderson, President
North Texas State University

Participants

Dr. Wilson Ashby
University of Alabama

Dr. J. Marshall Hanna
Ohio State University

Dr. F. Wayne House
Pennsylvania State University

Dr. Ray G. Price
University of Minnesota

Dr. Elizabeth T. Van DerVeer
Montclair State College

Dr. Roman P. Warmke
University of Minnesota

Dr. Ruth Woolschlager
Northern Illinois University

Consultants

Dr. R. B. Schmeri
University of Michigan

Mrs. Sue Smock
University of Michigan

APPENDIX A1

Group A Research Topic

Delta Pi Epsilon Research Conference

I. Title of Project

The Need For Educational Programs In Business Data Processing

II. Problem

A. Statement

The processing of business data by electronic and unit record equipment is creating changes in the traditional office and distributive occupations. Educational programs and requirements for vocational competency must, as a consequence, change also.

The question, however, is how educational offerings must change to prepare students to enter a new kind of work world; more specifically, what the current and projected status of data processing is--number of installations and employees, turnover, expansion, training.

B. Significance

1. Data processing is a new vocational field for which there are few programs in existance at the present time. There are apparently no programs in Michigan that are based upon a detailed analysis of the employment potential and required training.

2. At the present time it is estimated that there are 80 computer installations with 70 projected for the coming year, plus approximately 200 unit record installations in the Detroit area.

3. Over 90 per cent of persons currently involved in data processing have been trained by data processing manufacturers. Is this training function one that the schools can and should handle in their educational programs?

4. There will be almost a hundred percent increase in installations in the Detroit area in the next year. This fact provides a unique opportunity to observe at first hand what takes place in terms of existing and new job opportunities when a data processing installation is made. Consequently, it seems imperative that such a study be initiated at this opportune time.

III. Objectives

The purpose of this study is to determine the current and projected status of data processing installations in Michigan to ascertain the need for in-school training programs.

Before it is possible to develop an educational program, there must be an understanding of the needs. Specifically, answers must be obtained to the following:

A. The number of current and predicted data processing installations.

B. The number of persons currently employed in data processing installations and projected needs for new data processing personnel.

C. Type of training that was required of persons currently involved directly in data processing jobs and where obtained.

D. Type of training being given to employees in companies in which systems are currently being installed (including source of personnel and training).

E. Selection criteria in use or contemplated by employers to determine suitability of candidates for data processing jobs.

F. Specific courses, if any, in data processing required by employers.

IV. Procedure

A. General Design

1. Population

Two principal groups are to be studied:

a. Those companies that are presently data processing users.

b. Those companies that plan to install data processing systems within the next year.

2. Procedure

Survey research techniques will be utilized. These methods will include:

a. Stratified random sampling of data processing installations.

b. Structured interview by trained interviewers.

(1) All current and projected users will be contacted by telephone to obtain the number of users and people involved.

(2) Depth interviews will be held with selected companies to secure detailed data on personnel training policies and procedures.

(3) Appropriate interview instruments will be designed and field tested for both the telephone contacts and depth interviews.

Preliminary examination shows that several hundred contacts would be required in the Detroit area alone. This study of necessity, therefore, will be confined to the Detroit Standard Metropolitan Statistical Area.

B. Analysis

Standard survey research analysis methods will be utilized to determine how the results answer the objectives.

C. Time Schedule

D. Dissemination of Outcomes

Because of the importance of having such information as this study will furnish, tentative plans are to send reports to all Michigan school systems, junior colleges, teacher training institutions, and other colleges and universities that provide training in the office and distributive occupations.

V. Personnel

VI. Facilities

VII. Proposed Planning Budget

VIII. Reports

IX. Identification

APPENDIX A2

RESEARCH PROGRAM

SUBMITTED TO THE U.S. COMMISSIONER OF EDUCATION
UNDER THE PROVISIONS OF SECTION 4(C)
OF THE VOCATIONAL EDUCATION ACT OF 1963

PROJECT TITLE:	Curricular Implications of Automated Data Processing for Educational Institutions
APPLICANT:	(Name of applicant agency or organization)
ADDRESS:	(Address)
TELEPHONE NUMBER:	(Telephone Number)
INITIATED BY:	(Name, position, mailing address, and telephone number of the individual who initiated the proposal, ordinarily the principal investigator)
PRINCIPAL INVESTIGATOR:	(Required only if different from initiator)
SUBMITTED BY:	(Name and position of the official who is approving the submittal of the application. This must be someone in a position to assume such authority and to commit the institution or agency to the undertakings projected in the proposal. If the application is submitted jointly by two or more agencies, approval by each is required.)

In addition to the typed names on the original or master copy, the proposal should be signed by each individual mentioned above.

FEDERAL FUNDS REQUESTED:	$_____
DURATION;	Beginning (Date) Ending (Date)
	Total number of months required: _____ months
DATE TRANSMITTED	_____

CURRICULAR IMPLICATIONS OF AUTOMATED DATA PROCESSING FOR EDUCATIONAL INSTITUTIONS

1. THE PROBLEM: Increasing numbers of educationa institutions are establishing curricular programs in automated data processing, and it is highly probable that many more such programs will be established in the next few years. It is already clear that the merit of these programs varies considerably from case to case. The hypothesis upon which this proposal is based is that both existing programs and those that will soon be established would benefit greatly from appropriate recommendations resting on the compilation, analysis, and evaluation of information pertaining to present strengths and weaknesses in data processing programs throughout the country. The proposed investigation is restricted to secondary schools, vocational area schools, and technical institutes possessing data processing installations, unit record or electronic computers, and offering a course or courses in data processing. The specific problem with which the investigation will be concerned is the determination of common curricular elements in automated data processing programs in these educational institutions. A sample of such institutions will provide the basis of the investigation.

The study for which support is requested here would represent Phase I of a more comprehensive, long-range investigation. The second phase would be essentially analytical, based in part on the findings of Phase I, so as to determine the common body of knowledge needed for:

(A) Entry into selected office occupations affected by data processing;

(B) Adjustment to office occupations requiring knowledge of or ability in automated data processing techniques; and

(C) Measurable advancement in such office occupations.

Phase II will thus involve study of the implications of data processing for office occupations.

The third phase would be devoted to evaluation of the information obtained in Phases I and II in order to draw inferences about the curricula of educational institutions offering programs in data processing, and consequently, to make appropriate recommendations to modifications of these curricula. It is envisioned that the dissemination of the investigator's findings would constitute an important activity of Phase III.

2. RELATED RESEARCH AND BACKGROUND INFORMATION: To be completed by the person designated as principal investigator.

3. OBJECTIVES: The over-all objective of the proposed study is to compile information of potential value to the modification of existing (and the establishment of flexible) data processing curricula in occupation-oriented educational programs. Of the schools that will

comprise the sample, the specific elements to be investigated include:

(A) Curriculum: Scope and sequence (units of instruction in data processing courses)

(B) Instructional Materials

(C) Equipment Used

(D) Background of Students

(E) Background of Teachers

(F) School Services

(G) Costs of Program

The type of information to be elicited through interviewing or other appropriate techniques is exemplified in the outlines presented in Appendix I. The actual design of the interview questionnaires and other instruments must, of course, await favorable consideration of this request.

4. PROCEDURES: A. General Design. The elements to be investigated are indicated under general headings above. More specifically, these elements include, but would not necessarily be restricted to, the following:

(A) Curriculum: Scope and Sequence (Units of Instruction In Data Processing Courses)

1. Purpose of and courses included in program (course title, units of instruction, etc.)

2. Expected Competencies

3. Selection of Students

4. Office Occupation Cooperative Work Programs in Data Processing Training Stations

(B) Instructional Materials

1. By Source: E.G., Company Producing Machinery or other equipment, courses of study, publishing company aids, government materials, teacher-made materials, professional literature, curriculum development projects, private agencies.

2. By Kinds: E.G., Visual or mechanical devices

3. By Variety

4. Availability to School: E.G., Need, where located, effort involved, number of students using material.

(C) Equipment used: E.G., Key Punch, Verifier, Sorter, Collator, Reproducer, Interpreter, Computer Types, Card-to-type units, Selectrics, Varityper.

(D) Background of Students: Intellectual (according to standard measures), academic (grade point average), secondary school background (pattern from ninth grade to point of entry into program.

(E) Background of Teachers: Course background, occupation experience other than teaching, formal training in data processing.

(F) School Services: Guidance procedures, organized placement procedures, planned follow-up of graduates.

(G) Costs of Program: Salaries, allocation of space and equipment, supporting services.

The steps to be taken include the sampling of schools, sampling of students and graduates, study of the curriculum, and the interview of school staff, teachers, students, graduates, and employers.[1] A team of _____ members of the professional staff will conduct these interviews and investigations in the field. On the basis of their findings, evaluations will be performed to determine measurably successful elements in data processing curricula at the selected institutions.

- -

[1]School Staff:

Teachers: Those teachers presently responsible for teaching one or more data processing courses.

Students: Those presently enrolled in one or more data processing courses.

Graduates: Those persons who graduated from the program (passed one or more courses and graduated from the school).

Employers: The present employer of the above mentioned graduates.

B. POPULATION AND SAMPLE. The total population, as defined in Section I above, will be identified through such resources as:

1. State Departments of Education;

2. Selected Publishing and Machine Companies;

3. Teacher Trainers;

4. Results of the Balance Sheet Survey; and

5. Any other sources necessary to complete the listing.

A multi-phase stratified sample will be picked from this population as follows:

Step 1. The universe will be examined with regard to the following criteria to determine which, if any, need to be utilized for stratification purposes:

1. Type of school (secondary, vocational area, technical institute);

2. Geographic Region; and

3. Age of program (i.e., in existence three or more years, and less than three years).

Step 2. From the sample of schools, two samples will be picked from the following:

1. All students presently enrolled in the data processing program; and

2. All persons who have graduated from the data processing program.

The total number of schools to be sampled will be about ____.

C. DATA AND INSTRUMENTATION. The type of data to be collected is exemplified by the outlines presented in Appendix I. The design of instruments, as already indicated, will be one of the first responsibilities of the project staff.

D. ANALYSIS. To be completed by the person designated as principal investigator.

E. TIME SCHEDULE. To be completed by the person designated as Principal Investigator

5. PERSONNEL: To be completed by the person designated as Principal Investigator.

6. FACILITIES: To be completed by the person designated as Principal Investigator.

7. OTHER INFORMATION: To be completed by the person designated as Principal Investigator.

8. CONSIDERATION BY STATE BOARD FOR VOCATIONAL EDUCATION: To be completed by the person designated as Principal Investigator.

9. BUDGET. To be completed by the person designated as Principal Investigator.

APPENDIX I

Type of information to be elicited through interviewing or other appropriate techniques:

I. SCHOOL STAFF INTERVIEW

A. FACTUAL

1. History of Program
   A. Community Survey or Study
   B. When Started
   C. How Developed
2. Enrollments
3. Physical Facilities
4. Instructional Materials
5. Purposes of the Program
6. Placement of Graduates

B. OPINION

1. Strengths
2. Weaknesses
   A. Difficulties
   B. Problems
3. Employment Opportunities
   A. Present
   B. Future
4. Quality of Instruction

C. BACKGROUND OF TEACHERS

1. Course Background
2. Occupation Experience other than Teaching
3. Formal Training in Data Processing

II. INTERVIEWING STUDENTS

A. STUDENTS CURRENTLY ENROLLED

1. Why Enrolled
2. Career Objectives (Initial, Short Run, Long Run)
3. Educational Objective (College Bound, Technical)
4. How the Program Could Be Improved
   A. Strengths of the Program
   B. Weaknesses of the Program
   C. Feelings about Prerequisites and Related Courses

B. GRADUATES (INCLUDES ALL WHO GRADUATED FROM DATA PROCESSING PROGRAMS

1. Information from Section I Above
2. Additional Information, Such As
    A. Job History as it Relates to Data Processing
    B. Personal Follow-up From School (Including Placement in Initial Job)

EMPLOYER INTERVIEW

1. FOR WHICH DATA PROCESSING JOBS HAVE YOU EMPLOYED GRADUATES FROM _____ SCHOOL? (LIST JOBS)

2. WHAT HAS BEEN YOUR EXPERIENCE WITH THE GRADUATES FROM _____ SCHOOL IN THESE DATA PROCESSING JOBS? (SPECIFIC QUESTIONS TO BE DEVELOPED BY INTERVIEWER TO DETERMINE STRENGTHS AND WEAKNESSES.)

3. DO THE GRADUATES FROM _____ SCHOOL ORDINARILY REMAIN ON THE SAME JOB OR ARE THEY PROMOTED TO HIGHER LEVEL DATA PROCESSING JOBS AFTER A PERIOD OF TIME? IF SO, TO WHAT JOBS ARE THEY PROMOTED?

4. FOR WHICH OF THESE JOBS DO YOU HIRE GRADUATES FROM OTHER HIGH SCHOOLS? (INTERVIEWER WOULD KNOW WHICH OF THESE SCHOOLS HAD DATA PROCESSING PROGRAMS.)

5. WHAT HAS BEEN YOUR EXPERIENCE WITH THE GRADUATES FROM THESE SCHOOLS?

6. DO THESE GRADUATES REMAIN ON THE SAME JOB OR ARE THEY PROMOTED TO HIGHER LEVEL DATA PROCESSING JOBS AFTER A PERIOD OF TIME? IF SO, TO WHAT JOB?

7. DO YOU EMPLOY OFFICE DATA PROCESSING COOPERATIVE STUDENTS? (IF SO, INVESTIGATOR WOULD DETERMINE: A. KINDS OF JOBS STUDENTS PERFORM, AND B. EXPERIENCE WITH THESE STUDENTS, ETC.)

8. FROM YOUR EXPERIENCE IN DATA PROCESSING, IN YOUR OPINION WHERE CAN PERSONS BEST BE TRAINED FOR EACH OF THE FOLLOWING JOBS? (LIST JOBS.)

APPENDIX A3

Proposal No. 65.10.118
May, 1965

A RESEARCH PROPOSAL

Submitted to the U. S. Commissioner of Education
Under the Provisions of Section 4(c)
of the Vocational Education Act of 1963

Project Title: Curricular Implications of Automated Data Processing for Educational Institutions

Applicant: University of Colorado
Boulder, Colorado 80304
Telephone: Area Code 303 443-2211

Initiated by: Dr. F. Kendrick Bangs
Head, Division of Business Education, and
Professor of Office Management
School of Business
University of Colorado
Phone: 443-2211, Ext. 6186

Federal Funds Requested: $148,900.

Duration: Beginning September 15, 1965,
Ending June 10, 1967
Total number of months required: 21 months.

Date Transmitted: May 23, 1965

William H. Baughn, Dean
School of Business

F. Kendrick Bangs, Head
Division of Business Education,
School of Business

Dr. Thurston E. Manning, Vice President
and Dean of the Faculties

ABSTRACT

A RESEARCH PROPOSAL

(A) Submitted by: School of Business
University of Colorado
Boulder, Colorado

(B) Principal Investigator: Dr. F. Kendrick Bangs
Head, Division of Business Education
and Professor of Office Management
School of Business
University of Colorado
Boulder, Colorado

(C) Title: Curricular Implications of Automated Data Processing for Educational Institutions

(D) Objectives: The problem is to determine the implications of integrated data processing for the preparation of office workers as it affects the development of office occupations curricula in public secondary and public post high school institutions offering less than baccalaureate degrees. The main purpose of the study is to provide guidance for schools in evaluating existing programs and for establishing new programs in integrated data processing.

The study will compile information of potential value for modification of existing (and the establishment of flexible) data processing curricula in office occupation-oriented educational programs. The information will also be of value to counselors in providing students with occupational information in the data processing field.

(E) Procedure: A sample survey design utilizing interviews and questionnaires is planned for this study. Questionnaires administered by interviewers are to be used to gather factual data about programs being offered in schools today and about employees' backgrounds and information concerning data processing positions in office work in industry. Implications for curriculum construction will be derived from a detailed scrutiny of the course offerings of the three different kinds of educational institutions. These offerings will then be viewed in relation to the requirements of data processing departments and the opinions expressed by personnel regarding data processing employers.

(F) Time Schedule: 21 months, beginning September 15, 1965, and ending June 10, 1967

(G) Budget: Total cost $148,900.
Total Federal funds requested

0. INTRODUCTION

The present proposal is the result of a National Research Conference held by Delta Pi Epsilon, a graduate business education honorary fraternity, in Detroit, Michigan, during March, 1965. The purpose of the conference was to upgrade research in business education and to develop a fundable research proposal. Sixteen members of the fraternity who direct graduate research worked in two groups for three days under the direction of four specialists in research.

A draft of a proposal similar to this one was submitted to the National Officers of Delta Pi Epsilon with the suggestion that they ask one of the members of the Conference to accept the responsibility as Principal Investigator to prepare a research proposal to submit for funding. Dr. F. Kendrick Bangs, a member of the Delta Pi Epsilon National Research Committee, was asked to be the Principal Investigator, and Dr. Mildred Hillestad, winner of the 1960 Delta Pi Epsilon Research Award, was asked to be the Research Associate on the project.

Participants in the Research Conference, reflecting the attitude of business educators throughout the country, were concerned with the rapid development of mechanized and automatic data processing equipment and its effect on business offices and on the vocational business education curriculum.

Following a problem solving seminar on the impact on training of present and future office employees, members of the National Office Management Association made these comments in answer to this question:[1] On the problem of preparing office people for careers in the office of tomorrow,

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[1]AUTOMATION--IMPACT ON TRAINING OF PRESENT AND FUTURE OFFICE EMPLOYEES, Proceedings of a Problem-Solving Seminar, National Office Management Association, Willow Grove, Pa., 1962.

what do you believe is the most important action that should be taken?

The single, most important action to be taken is the evaluation and assessment of the problems that really exist in office automation. A great deal of objectivity is needed to separate the real problems from the mythical problems. This can be done only if competent and intensive surveys are made to discover the real ills (if any) of data processing before anyone can prescribe a cure. When this has been accomplished, the NOMA and other organizations will be in a better position to judge what course of action should be initiated for the training of future office personnel.

Develop a more accurate forecast of the impact of EDP on the office and indicate the nature and number of office positions (becoming) available in the years ahead. This is to be the basis for curriculum planning and vocational guidance.

Businessmen should determine (not in general terms, but in specifics) what activities a high school graduate will be called upon to do in the office of the future. Businessmen should determine (again in specific terms) what knowledges and skills will be needed to perform the activities needed in the office of the future. Business educators can then use the information produced by these steps to create instructional units and materials. We educators are ready to work, but we don't know what businessmen want us to do--how they want us to train their future employees.

The extensive introduction of electronic computers for data processing and other applications has created a critical need for greater numbers of more highly skilled personnel. The help-wanted sections of metropolitan newspapers provide ample evidence of this need. Attractive inducements are made for electronic data processing managers, programmers, EDP console operators, systems analysts, tabulating equipment, supervisors, punched-card machine operators and many others. To meet these personnel requirements, more people need to be trained and present management and operative personnel need to be retrained.

Implicit in the quantitative aspects of training are the qualitative aspects. What kind and how extensive should the training be for these various people? Also, who should provide this training? While considerable effort is being expended on training programs by the several agencies,

not much objective research has been done to determine these needs. Such research is needed for counseling, guidance, curriculum, and program development by the various training and education agencies. It is also needed to implement coordination of efforts, thereby eliminating unneccessary duplication of efforts. This study is intended as a contribution to this body of needed research.

I. PROBLEM

The problem is to determine the implications of integrated data processing[1] for the preparation of office workers as it affects the development of office occupations curricula in public secondary and public post high school institutions offering less than baccalaureate degrees.

Two broad facets of the problem include:

1. The analysis and evaluation of integrated data processing training programs in selected educational institutions.

2. A study of employees in the integrated data processing programs in selected business offices to determine the common body of knowledge needed for:

   a. Entry into selected office occupations affected by data processing.

   b. Adjustment to office occupations requiring knowledge or ability in automated data processing techniques.

   c. Patterns of advancement in such office occupations.

   d. Retraining.

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[1]Integrated data processing can be described briefly as automation of source data. The writing for an office operation is put into such a form that subsequent operations requiring this writing can be processed automatically. Integrated data processing therefore tends to tie office work together, to integrate it, or to form a whole from the various parts. Mechanization is used. The term integrated mechanical data processing would be more precise; but the modern and common term is integrated data processing and hence will be used here.

2. RELATED RESEARCH

When viewed as a whole, the literature in data processing has produced but little information that might serve as guides to schools in making decisions about the feasibility of having data processing programs in their institutions. Neither have the studies provided conclusive information that would be of help in deciding what to offer in a program if it were to be part of a business education curriculum.

Many efforts have been made to identify problems created by introduction of integrated data processing into business offices and to determine the educational im plications of electronic data processing on the business curriculums in both high schools and colleges.

These investigations have explored such areas as the duties of persons employed in the various electronic data processing occupations, the training and personal qualifications necessary to perform these duties successfully, the salaries paid in jobs in different levels, applications for which computers have been used in processing business data, the specialized training programs provided by business, and the types of equipment used. These elements have been studied in the hope that the information thus gathered would prove helpful in curriculum development in business education at both the high school and college levels.

On only one point, however, is there some agreement; namely, that people in the management positions in data processing departments need at least four years of college work. However, for the lower echelons of management (supervisory levels) the findings are inconclusive. According to a study of Ohio business establishments using electronic data processing equipment, Jones (11) concluded that the supervisory personnel need more than a high school education, but not necessarily a college degree. On the other hand, the Cranks (1) found in a questionnaire study of 50 businesses in 10 states that possession

of a college degree is generally a requirement for supervisory level jobs.

In 1957, the Department of Labor (17) studied adjustments to the introduction of office automation to determine the extent of displacement and reassignment of office employees as well as the characteristics of the employees whose jobs were eliminated and the practices in transferring, retraining and selecting employees for the new occupations. The report indicated that in offices into which automated data processing had recently been introduced that 42 per cent of the people had completed college work or had graduated, but that 78 per cent of the newly hired employees had this amount of education. Goodman (5) reported that a survey of 100 data processing personnel in Los Angeles revealed that 30 per cent of the specialists in data processing and management had four years of college work. No mention was made of the backgrounds of the rest of the management personnel.

In examining the literature relative to the education of programmers and systems analysts, the picture is even more unclear. Hay (9), who interviewed 26 data processing managers to find out worker functions and characteristics that contribute to the successful job performance of programmers in electronic data processing, reported that college training was not necessary for programmers. Rather the prospective programmer should be an alert person who is a logical thinker with an aptitude and desire for and an interest in data processing work.

To a certain extent, Jones' study (11) supports these conclusions saying that some of the lower level programming and systems work can be handled by people with a high school education. Goodman (5), too, indicates that in the programmer-systems analyst group of employees, half should be college graduates and half should be two-year college people with specialization in business or data processing.

The disparity of findings is apparent also for the tabulating-accounting machine operators. Haga (6) found that the amount of education required for accounting machine operators depended on the particular computer system in which the operator worked, but that in general tabulating machine operators did not need college degrees. Less than half of the Franklin County, Ohio, employers of tabulating machine operators surveyed by the Ohio State Board of Education (16) required post high school education, not necessarily college work, and about a sixth of them preferred this training but did not require it.

On the other hand, Goodman (5), Hoos (10) and Jones (11) all found that high school education was adequate for tabulating machine operators; while the Crank study (1) indicates that these people should have had two years of college work.

In the keypunch area the studies generally agree, with one exception. The Cranks (1), who indicate that for keypunch operators two years of college is desirable rather than a high school education, including typing skill, are the exception.

Generally the specialized training on machine operation from keypunch through computer console operation was commonly thought to be best provided by either the employing company or by the equipment manufacturer. However, later studies (11, 12) seem to show a slight trend toward hiring people from high schools, junior colleges and other post high school institutions for some of the machine operating jobs, with the businesses hiring them providing training in the special applications needed for their own purposes in a brief in-service training program.

Whether this is a trend or not, is not clear since in most of the studies the data were gathered before many educational institutions offered training in data processing. Perhaps because so few data processing programs were in

existence at the time these studies were done, no real attempt was made to evaluate the effectiveness of the education and training provided or to draw many curriculum implications.

However, Frisbee (3), as early as 1957, felt that keypunch training was not practicable in the high school since it required too much expensive equipment, especially in view of the trend toward marked sensing and magnetic character recognition, which eliminates the need for manual punching of the cards. Hoos (10) a few years later made the same recommendation.

Haga (6) concluded that, in the future, bookkeeping would not have the emphasis in high school business programs that it has had in the past, but Frisbee (3) felt differnetly and recommended that attention should be directed to evaluating the course content of bookkeeping in terms of current needs and that the fundamentals of bookkeeping and the analysis of bookkeeping records produced by electronic data processing were becoming increasingly important to companies.

Edwards (2), who interviewed data processing managers in all 43 businesses in Oklahoma City that had data processing installations in 1957, concluded that personal traits, work habits and job preparation required by workers in the automatic data processing field were very similar to those required in other office workers. This indicated to Edwards that currently functioning educational facilities could be utilized in occupational preparation of prospective employees with only minor shifts in educational emphasis and a few relatively major adjustments concentrated chiefly around making machines available for instructional use.

Laurie (13) to some extent agreed with this, but seemed to contradict himself about the potential of the junior college as a suitable educational agency for data processing. He said that in light of the general failure of

business to recognize the high school and the junior college as potential sources of computer personnel, these schools should presumably continue their normal activities and not attempt to increase the number of specialized courses in the curriculum, and that if such courses were to be added, they should be added slowly and with great care.

Then later Laurie concludes that the junior college should probably not be interested in the computer per se, but might well turn its attention to the peripheral equipment that will surround the computer. Particularly, they might give attention to the training of peripheral equipment personnel in their terminal courses. He points out, however, that they should do so, fully aware that progress toward direct communication between the manufacturing process and the recording process is being made; and this will eventually result in a decrease of human operator created input. No later studies have determined whether the prediction about the junior college function is true.

In spite of the discussion about data processing and the conclusions drawn by these investigators, little credence can be given to the findings. For instance, Haga (6) bases his conclusion on 55 responses received to a questionnaire sent to 268 businesses (21 per cent response), and Frisbee (3) bases her conclusions on a 36 per cent return to her questionnaire. These figures represent the rate of return in most of the studies herein reported. The highest return to a questionnaire was a 54 per cent response reported by Hartman (8).

In one study in which the conclusion is drawn that high school can be a training ground for several data processing jobs, the investigator first sent a letter to 390 businesses asking them to cooperate on a questionnaire study. Of these, 174 expressed a willingness to do so, but 69 of the 174 returned usable questionnaires. On the basis of the 69 replies, all collected

from Ohio concerns, the investigator infers that the findings are generalizable to the United States since the economy of Ohio parallels that of the entire nation (11:109-111).

In other respects also, the sampling in these studies leaves much to be desired. In no study was any attempt made to collect data from a random sample. In all cases, the sample was the sample at hand consisting of subjects who expressed willingness to cooperate in the study. This, in conjunction with the low rate of return on the questionnaires, resulted in a biased sample.

Only in the two studies where interviews were done were complete returns obtained. Edwards (2) was able to interview in all businesses in Oklahoma City that had automated data processing installations in 1957; and in the study done by the Ohio State Board of Education in Franklin County, Ohio, where a questionnaire was presented in person to 51 businesses, 50 participated in the study and discussed the information on the questionnaire.

Thus, in spite of the fact that much effort has been expended in investigation of the educational implications of automation in the office, nothing conclusive has been produced. The studies tend to be unreliable because of the biased samples. The findings cannot be generalized either because the studies are extremely localized geographically and because of the inadequate sampling procedures.

Consequently, business educators know relatively little more about what to teach in and about data processing, or when and where to teach it. Thus, the present study could supply information, not only about what business actually needs by way of qualified data processing employees, but also to evaluate current instructional programs in data processing offered in public educational institutions. The investigator in only one of the studies (10) interviewed the employees at all levels of data processing about the training

they had. However, no indication is given that they were asked to evaluate what they had studied in the data processing programs in which they received their training.

This study, therefore, will attempt to survey (1) business about its needs for data processing employees and the educational and personal qualifications they should possess, as well as about its evaluation of the products of data processing programs in public schools; (2) data processing employees about the training they have had and the adequacy of that training; (3) data processing equipment manufacturers about new developments anticipated in machines and procedures (scanning devices, program oriented languages, etc.) and their possible influence on the training and qualifications necessary to work with the devices being developed for the future; and (4) public educational institutions about current offerings in data processing and about the students who are taking advantage of what is offered.

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3. OBJECTIVES

The main purpose of the study is to provide guidance for schools in evaluating existing programs and for establishing new programs in integrated data processing.

The study will compile information of potential value for modification of existing (and the establishment of flexible) data processing curricula in office occupation-oriented educational programs. The information will also be of value to counselors in providing students with occupational information in the data processing field. This information may come from:

A. The data processing instructional staff in schools offering such programs, who will provide such information as:

1. Curriculum: Scope and sequence (units of instruction in data processing courses).

   a. Purpose of and courses included in program (course title, units of instruction, etc.).

   b. Expected competencies.

   c. Criteria for selection of students.

   d. Office occupation cooperative work programs in data processing training stations.

2. Instructional materials.

   a. By source: e.g., company producing machinery or other equipment, courses of study, publishing company aids, government materials, teacher-made materials, professional literature, curriculum development projects, private agencies.

   b. By kinds: e.g., visual or mechanical devices.

   c. By variety.

   d. Availability to school: e.g., need, where located, effort involved, number of students using material.

3. Equipment used: e.g., key punch, verifier, sorter, collator, reproducer, interpreter, computer types, card-to-tape units, selectrics, varityper.

4. Background of students: Intellectual (according to standard measures), academic (grade point average), secondary school background (pattern from ninth grade to point of entry into program--from transcripts).

5. Background of teachers: Course background, occupation experience other than teaching, formal training in data processing.

6. School services: Guidance procedures, organized placement procedures, planned follow-up of graduates.

7. Costs of program: Salaries, allocation of space and equipment, supporting services.

8. Problems encountered in evolving and integrated data processing program.

B. Employees in integrated data processing departments, who might furnish such pertinent information as:

1. Equipment and procedures with which they work.

2. High school and/or post high school training, including co-op part-time programs.

3. On-the-job training.

4. Work history (employment record).

5. Evaluation of their school training.

6. Plans for further education.

7. Occupational mobility patterns.

C. Data processing management personnel in business offices, who might furnish such relevant information as:

1. Promotional patterns of personnel in these departments.

2. Criteria for selection of beginning employees.

3. Evaluation of employees from co-op programs vs. other beginning employees.

4. Supervisory practices, includes selection of supervisors.

5. Changes anticipated in procedures and equipment in next five years.

6. Supply-demand information.

7. Pay scale for different job classifications and preparation.

8. Recruitment practices.

9. Upgrading of employees.

10. Retraining methods.

Information gathered from these three sources should provide answers to specific questions pertinent to the problem:

1. Are data processing programs as taught in educations institutions meeting the demand of firms for data processing personnel?

2. What jobs are available for high school graduates from data processing programs?

3. What jobs are available for graduates from programs in post-high school institutions?

4. What major differences are there between data processing programs at the high school and post-high school levels?

5. What differences are there in the preparation of teachers instruction data processing courses at the high school and post-high school levels?

6. What kinds and amount of on-the-job training are required for graduates from data processing programs at the high school and post-high school levels?

7. How much on-the-job (and what kind) training is required for graduates from cooperative training programs in data processing at either the high school or post_high school level?

8. What are the opportunities for employment of workers with no specialized training in data processing?

9. What significant characteristics distinguish strong from weak programs in data processing programs?

10. What is the attitude of business toward employing students from cooperative programs compared with other programs?

4. PROCEDURES

A. General Design:

A sample survey design utilizing interviews and questionnaries is planned for this study because of the kind of information needed and because data are needed at the national level in order to determine common elements that may serve as a basis for curriculum development in business education departments over the country.

The type of information desired can best be gathered in the shortest time and most economically through a sample survey design. Such a design, using teams of trained interviewers, will make it possible to collect data from schools and offices concurrently.

Also, a great portion of the data needed is of the type that can best be gathered with open-end questions. In most of the previous research in business data processing and its effect on schools and business, the investigators attempted to get answers through the use of questionnaires. The highest rate of return reported in any of the studies was 54 per cent (8), with the median return on questionnaires being about 30 per cent.

On the other hand, in two studies using interviews (3, 18) and a combination of interview and questionnaire, the investigators were able to get information from all of the businesses using data processing equipment in one city, and with the combination interview and questionnaire approach, 50 out of 51 companies responded.

Thus, questionnaires administered by interviewers are an efficient means of gathering factual data about programs being offered in schools today and about employees' backgrounds. Use of interviewers should enable us to reach nearly all, if not 100 per cent, of the samples selected.

The factual information gathered on the questionnaires will serve as a point of departure for interviewers to probe more completely into motivations of the people involved, their evaluations of their training programs, and their plans for the future. Since characteristics of existing programs are not known (new programs are the rule), interviews will permit collection of more precise information regarding program content. Also, the reliability of the questionnaire data will be determined by the use of interviews.

Steps in the procedure include:

1. Develop and refine interview schedules and questionnaires.
   a. Develop a questionnaire and schedule.
   b. Try out the instruments in three businesses in the Denver-Boulder area, and in Emily Griffith Opportunity School, and Otero Junior College, La Junta, Colorado. The try-out interviews will be taped for training sessions.
   c. Revise questionnaire.

2. Select population and sample. (See detail under Section B of Procedures.)

3. Select and train interviewers.
   a. Interviewers to be selected from applications submitted by doctoral candidates in business education throughout the country.
   b. Training session to be conducted three days prior to the Delta Pi Epsilon National Council meeting in Norman, Oklahoma, November 8-10, 1965.

4. Gather data.
   a. From school administrators and/or teachers of data processing. Interviewers will secure information concerning curriculum, selection of students, backgrounds of teachers, equipment and

materials used, cost and financing of the program, and organization of the program.

b. From personnel in offices utilizing data processing equipment, interviewing team will gather pertinent data from:

(1) Employees: Factual data will be gathered by means of questionnaires administered by interviewers from employees in integrated or automated data processing departments.

A randomly selected sample of the employees in each office will be interviewed regarding their reasons for entering data processing occupations, more detailed information about their training in data processsing, and their future plans. Some of the factual data from the questionnaire will be discussed, too, in order to establish reliability of the responses on the questionnaires.

(2) Data processing management personnel: These people will be interviewed concerning relative quality of employees with different backgrounds and training, weaknesses and strengths of employees from different types of training programs, courses and amount of training needed, recruitment practices, promotional patterns and opportunities, and projected plans for updating or expansion of data processing departments.

c. From manufacturers of data processing equipment (computers and peripheral equipment) interviewers will gather information about anticipated innovations and developments in equipment and procedures in business data processing, such as scanning devices, program oriented languages, etc., and the kinds of training anticipated as being required by the operators of these new devices.

5. Supervise and control quality of interviews.

a. Evaluate responses (quality and quantity) of responses to interview schedules and the taped reports returned by interviewer teams.

b. Post-card follow-up of interviews.

6. Code and classify data for computer input (by staff at project center).

7. Analyze data.

In order to draw inferences about existing curricula in educational institutions offering data processing programs, comparisons will be made between responses from business offices, equipment manufacturers,

and schools. Implications for curriculum construction will be derived from a detailed scrutiny of the course offerings of high schools, vocational-technical schools, and junior colleges. These offerings will then be examined in relation to the requirements of data processing departments, the opinions expressed by personnel regarding data processing employees, and opinions about future requirements as expressed by equipment manufacturers. (See detail of analysis on p. 24.)

8. Prepare the final report.
9. Prepare curriculum guides and occupational information materials for schools offering vocational education in data processing.
10. Disseminate the findings and recommendations, curriculum guides, and occupational information materials to provide guidance to educational institutions engaged in or anticipating establishing vocational data processing training programs, and to provide occupational and educational guidance information for vocational guidance counselors.

A second important phase of this study would be a similar investigation planned for five years hence to evaluate the effect of the recommendations on existing programs and to evaluate programs established on the basis of recommendations made in this study.

B. Population and Sample:

In vocational education provision must be made in the curriculum for the acquisition of basic knowledges, values, and attitudes, as well as practical application of skills used on the job. Through analysis of the facts supplied by business about its needs along with facts collected from equipment manufacturers about anticipated personnel characteristics and requirements in light of future developments in data processing, information may be derived upon which appropriate vocational curricular decisions can be made. Therefore, to determine the implications for curriculum development in the area of integrated data processing for the preparation of office workers, it is necessary to sample businesses using integrated data processing and manufacturers of equipment. In addition, samples drawn from schools with data processing training programs are necessary in order to evaluate the current curriculum patterns.

Dun and Bradstreet's 1963 Million Dollar Directory[1] lists some 23,000 businesses with net worth of one million dollars or more. This list will be the population from which the sample of data processing equipment users will be drawn, since businesses of this size are most likely to be the ones that utilize such equipment. Such equipment represents large capital investment; thus, larger companies are currently the source of information for the problem under investigation.

The N.E.A. small-sample formula[2] $n = \frac{\chi^2 Npq}{d^2 (N - 1) + \chi^2 pq}$

will be used for determining the size of sample necessary to draw conclusions applicable to the entire population of businesses. Application of this formula shows that approximately 280 businesses would constitute an adequate

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[1]Dun and Bradstreet, 1963 Million Dollar Directory, 99 Church Street, New York, New York.

[2]National Education Association Research Division, "Small Sample Techniques," The NEA Research Bulletin, Vol. 38 (December, 1960), pp. 99-104.

sample for a study of this kind. Questionnaires asking for factual information will be administered by the interviewers to all employees in data processing departments in these businesses. Interviews will be conducted with the person in charge of the department and with employees selected at random as explained on page 19. A minimum of about 850 interviews is anticipated in business offices.

Data processing personnel are usually regarded as a mobile population. This is generally true of those at the higher job levels. However, beginning employees in integrated data processing usually come from the local communities. Consequently, one high school data processing program will be studied in the school system in each community from which a business is selected. This study is delimited to public secondary and public post-high school institutions offering less than a baccalaureate degree. Thus, should area vocational-technical schools or a public junior college be located in the community in which a selected business is situated, the data processing programs in these institutions will also be studied. The interviews will be conducted with the person in charge of the data processing instructional program in each of the schools selected. Thus, approximately 350 interviews in schools are anticipated.

C. Data and Instrumentation:

The type of data to be collected is exemplified by the items outlined in section 3. Objectives, parts A, B, and C, concerning curriculum patterns (courses offered, materials used, equipment, students, teachers etc.), data concerning employees (jobs held, training, and other characteristics), and data concerning the utilization of data processing procedures, equipment, and operating personnel in the office (equipment and procedures used, selection, training, and evaluation of employees). The detailed design of instruments, as already indicated, will be one of the first responsibilities of the project staff.

Illustrative questions for the interview guides and questionnaires are included as an attachment.

D. Analysis:

Much of the information collected about data processing programs in the schools and the data processing departments in businesses are descriptive and will not lend themselves to statistical analysis. However, where appropriate, these data may be summarized with descriptive statistics (means, medians, or percentages may be used as well as standard deviations and/or ranges, depending on the nature and skewness of the distributions of data) and normative data developed about qualifications and training for data processing jobs.

Illustrations are given in Tables 1 through 5, shown at the end of this section, of some types of data to which chi-square analysis may be applied to test the significance of differences in several aspects of data processing programs or in aspects of data processing departments in business offices. If the data are classified into more than 2 x n categories, contingency coefficients may be calculated. The kinds of data to which contingency analysis might apply are illustrated in Tables 6 through 9 at the end of this section. If cell frequencies are too small for chi-square analysis, Fisher's exact probability test may be used. If other analyses are suggested by the data, other appropriate non-parametric statistics will be used.

Some comparisons will not lend themselves to statistical analysis and will best be handled through discussion. Illustrations of this type of information are:

1. Opinions of data processing management personnel of qualifications necessary for selected jobs compared with qualifications actually possessed by the employees when they were hired for the job.

2. Promotional patterns of data processing employees working in different sized installations.

3. Patterns of in-service training programs for different jobs in data processing installations of different sizes.

4. Opinions of management personnel regarding quality of preparation of employees obtained from different kinds of schools.

5. Comparisons of the kinds of courses offered in the different types of schools offering data processing programs.

Other of the data may best be summarized by presenting frequency distributions, such as the number of schools of different sizes which require mathematics as a prerequisite for entry into the data processing program. Also, data such as the number of businesses that provide on-the-job training on their premises and those who send new employees to special training programs provided by the equipment manufacturers may be summarized in frequency distributions.

On the other hand, means or medians of salaries paid for selected data processing jobs may be calculated; or the median and/or mean number of years of work experience data processing teachers have may be presented.

Certain information may best be presented in narrative form. The employees' opinions of what were the weak areas in their school preparation for their data processing jobs would most likely be presented in discussion. Another portion of the information that will be analyzed through observation of and search for general trends without statistical analysis would be the information relative to promotional patterns as evidenced by employees' work histories.

TABLE 1. BOYS AND GIRLS ENROLLED IN DATA PROCESSING PROGRAMS IN SMALL, MEDIUM, AND LARGE SCHOOLS

Sex	Small	Medium	Large	Total
Boys Girls				
Totals				

TABLE 2. BOYS AND GIRLS ENROLLED IN COOPERATIVE PART-TIME TRAINING PROGRAMS AND REGULAR ACADEMIC PROGRAMS IN DATA PROCESSING

Sex	Type of Program Organization		
	Cooperative Part-Time	Regular Academic	Total
Boys Girls			
Totals			

TABLE 3. ORGANIZATION OF DATA PROCESSING PROGRAMS IN HIGH SCHOOLS OF DIFFERENT SIZE

Type of Organization	Size of High School			
	Small	Medium	Large	Total
Cooperative Part-time Regular Academic				
Totals				

TABLE 4. BOYS AND GIRLS ENROLLED IN DATA PROCESSING PROGRAMS IN DIFFERENT KINDS OF PUBLIC SCHOOLS

Sex	Kind of School			
	High School	Vocational-Technical	Junior College	Total
Boys Girls				
Totals				

TABLE 5. NUMBER OF MEN AND WOMEN EMPLOYED IN DATA PROCESSING DEPARTMENTS OF DIFFERENT SIZE

Sex	Number of Data Processing Employees				
	1 - 10	11-100	100-499	500+	Totals
Men Women					
Totals					

TABLE 6. INTELLECTUAL LEVEL OF STUDENTS ENROLLED IN DATA PROCESSING PROGRAMS IN HIGH SCHOOLS OF DIFFERENT SIZE

Intellectual Level	Size of High School			
	Small	Medium	Large	Totals
High Above Average Below Average Low				
Totals				

TABLE 7. NUMBER OF DATA PROCESSING COURSES OFFERED IN DIFFERENT KINDS OF SCHOOLS

Number of Data Processing Courses	Kind of School			
	High School	Vocational-Technical	Junior College	Totals
0 1 2 - 3 4 - 6 7+				
Totals				

TABLE 8. AMOUNT OF GENERAL OFFICE WORK EXPERIENCE OF DATA PROCESSING TEACHERS IN DIFFERENT KINDS OF SCHOOLS

Total Office Work Experience in Years	Kind of School			
	High School	Vocational-Technical	Junior College	Totals
Less than 1 1 - 2 3 - 5 More than 5				
Totals				

TABLE 9. AMOUNT OF DATA PROCESSING WORK EXPERIENCE POSSESSED BY TEACHERS OF DATA PROCESSING IN DIFFERENT KINDS OF PUBLIC SCHOOLS

Data Processing Work Experience in Years	Kind of School			
	High School	Vocational-Technical	Junior College	Totals
Less than 1 1 - 2 3 - 5 More than 5				

The above tables are illustrative of the kinds of data that may be analyzed by use of chi-square or other appropriate statistics. Still other tables may show such data as these:

Where data processing teachers obtained their work experience in data processing.

Titles of courses in data processing offered by high schools, vocational-technical schools, and junior colleges.

The agenencies in which employees in the several data processing jobs obtained their training.

Data processing courses taken by employees of data processing departments and the agencies which provided them.

As the questionnaires and interview schedules are developed, other appropriate tables and normative data will be compiled.

e. Time Schedule:

1. Develop, refine, and try out instruments (questionnaires and interview guides)	September 15, to November 30, 1965
2. Selection of sample	September 15, to November 30, 1965
3. Select and Train interviewers	September 15, to November 10, 1965
4. Conduct interviews in business and educational institutions	February 1, 1966 to April 30, 1966
5. Code and classify data	February 1, 1966 to January 25, 1967
6. Analysis of data	September 15, 1966 to June 10, 1967
7. Prepare final report	January 25, 1967 to June 10, 1967

5. PERSONNEL

Principal Investigator

Dr. F. Kendrick Bangs
Head, Division of Business Education
and Professor of Office Management

Dr. Bangs is Head of the Business Education and Office Administration Division of the School of Business, University of Colorado. He recently has been appointed to the position of Director of Executive Education Programs in the University School of Business. He has also served as Director of Graduate studies in the School of Business. During his nineteen years on the University faculty he has directed the research in the Business Education Division at the master's degree level and also the research in the field of Business Education at the doctoral level.

As a member of the Research Committee of Delta Pi Epsilon, Dr. Bangs helped plan and conduct the National Research Institute held in Detroit, Michigan, March 6-9, 1965, which was the springboard for the present research proposal. In addition to being an active participant in the local, state, regional, and national professional associations where he has held offices at all levels, he has been an active member of the Denver Chapter of Administrative Management Society (formerly NOMA) and a past president of that association.

Teaching emphasis for him during the past few years has been in the office management field where he has been concerned with the research in data processing, the application of data processing procedures, and training of office personnel.

Teaching assignments in the School of Business include Business Research which is required of all students at the master's degree level as well as the doctoral level students who have not taken the course previously. He also teachers the Research in Business Education course during the summer session each year to the graduate students in business education.

Directorship of the National Installment Banking School held on the Boulder campus each summer during the past six years has used his ability in curriculum construction and the development of courses of study. His responsibility with the School has been: curriculum development, writing of courses of study, employing faculty, direction of the extension problems assigned students during the intervals between summer sessions, and planning changes in the program with the Board of Trustees of the School.

Personal Data

Degrees Held:
Ed. D., Indiana University, 1952, Business Education
M.P.S., Colorado University, 1946, Management (Personnel)
B. Ed., Illinois State Normal University, 1936, Business Education

Military Experience:
U.S. Army, Personnel Sergeant Major, 1942-46, Personnel Work in Adjutant General Section of 78th Infantry Division.

Teaching Experience:

Business Instructor, Rosiclare High School, Rosiclare, Illinois, 1936-37

Business Instructor, Carmi Township High School, Carmi, Illinois, 1937-42

Professor (since 1960), School of Business, University of Colorado, Boulder, Colorado, 1946-to date

Business Experience:

Foote Bros, Gear Co., Chicago, Illinois, Field Office Manager, summers 1941-42, office manager of building construction

Consulting in business during past fifteen years in the Denver area with such types of business as: hospitals, mortuaries, school district offices, insurance, research groups

Other Noteworthy Activities:

Faculty Director, National Installment Banking School (co-sponsored by American Industrial Bankers Association)

Feature Editor (Basic Business) BUSINESS EDUCATION FORUM, Published by NBEA

Associate Editor of the DELTA PI EPSILON JOURNAL, a quarterly professional publication

Coordinator for Workshop in Business Economics, co-sponsored by Colorado State Chamber of Commerce

Director of Graduate Studies, School of Business, University of Colorado

Attended IBM Customer School, Endicott, New York, summer of 1961

University Committees:

Committee on Committees, Secretary

All-University Committee on Teacher Education

University-Public School Group on Advanced Placement

All-University Committee on Academic Advising

Council on Honors

University Planning and Building Committee, School of Business

Research Associate

Dr. Mildred C. Hillestad
Associate Professor in Business Education
Colorado State College, Greeley, Colorado

Research Background:

1. Experience:

Research Fellow, University of Minnesota

Worked with Dr. Ruth E. Eckert on the Statewide College Teacher Study (Sample-survey, interview design) 1957-58

Directed a two-year experimental study in the teaching of beginning typewriting in the Minneapolis-St. Paul schools with Dr. Ray G. Price, 1954-56

Doctoral dissertation, "Factors that Contribute to the Difficulty of Shorthand Dictation Materials," was the 1960 Delta Pi Epsilon Research Award winner. (Multiple regression analysis.)

2. Research teaching:

Adviser for master's and doctoral theses in business education at Colorado State College.

Classes in research methodology and in analysis of research in business education at Colorado State College. Also taught a section of the Introduction to Graduate Study class for the graduate school at Colorado State College. (Master's and doctoral.)

Classes in research methodology at both master's and doctoral levels at Northern Illinois University, DeKalb, Illinois.

Classes in business statistics (through inference) at Colorado State College

3. Professional research activities:

Chairman, Delta Pi Epsilon Research Committee, 1957-61.

Secretary, Research Foundation, National Business Education Association, 1961-63.

Research Editor, DELTA PI EPSILON JOURNAL, 1964-to date.

Educational Background:

Ph. D., University of Minnesota, 1960, Education and Educational Psychology
M.B.E., University of Colorado, 1952, Business Education
B. Ed., Wisconsin State Teachers College, Whitewater, 1943, Business Education

Courses taken include:

Statistics in Education and Psychology, 20 qtr. hrs., P. O. Johnson, Professor, University of Minnesota

Testing and Measurement, 6 qtr. hrs., University of Minnesota and University of Colorado
Audited Surveys, Polls and Samples, Dept. of Psychology, University of Minnesota

Data Processing:

Introduction to Data Processing and Logic of Computers, University of Minnesota, Extension Division

Basic Wiring, Introduction to Systems and Procedures, and FORTRAN Programming, IBM Educational Center, Minneapolis, Minnesota

Business Experience:

War Department, Office of the Chief of Finance, Audit Clerk and Keypunch Supervisor, 1940-41

American Red Cross, Evanston, Illinois, 1945-46, Secretary

Mayo Clinic, Rochester, Minnesota, Summer, 1948, Medical Secretary

Union State Bank, Amery, Wisconsin, Summer, 1942, General Office Work

Interviewers:

Selected from applications submitted to the Principal Investigator. Requirements for applicants:

1. Doctoral candidates (generally at the dissertation-writing stage)
2. Background training or experience in data processing
3. Business teaching experience
4. Business experience
5. Communication skill
6. Recommendation of graduate advisor

6. FACILITIES

Facilities at the University of Colorado are adequate for the performance of the proposed research project. The University has the computer services necessary for this project. There is a Research Center which is equipped with an IBM 709 and a 1620. The University has an Office of Research Services, the services of which will be available to the persons working on the proposed project.

The School of Business will make space available for offices of the personnel on the project in addition to work space for the project. The University Library is the most comprehensive in this part of the region and will prove to serve the needs of the researchers.

NOW IN DUPLICATE

7. OTHER INFORMATION

a, Amount of support available from sources other than the Federal Government and the University of Colorado:

None requested.

b. This proposal has not been submitted to any other agency or organization.

c. This proposal is not an extension of, or addition to, a program previously or currently supported by the Office of Education and conducted by the University of Colorado.

d. Neither this nor a similar proposal has been previously submitted to the Office of Education by the University of Colorado.

8. CONSIDERATION BY STATE BOARD FOR VOCATIONAL EDUCATION

This proposal was discussed with Mr. A. R. Bunger, Director of the State Board for Vocational Education.

In conversation with Mr. Bunger, he said that the State Board through the Executive Officer indicated a very great need for this kind of study, particularly as more and more schools are showing an interest in this field of instruction. He said that the Board needs the benefits of such a study in order to give direction to those schools. The Board looks with favor upon this proposal.

APPENDIX B

1965 DPE RESEARCH CONFERENCE

COMMITTEE B PARTICIPANTS

Research Committee Members

Dr. Fred S. Cook
Wayne State University

Dr. Kenneth Bangs
University of Colorado

DPE Officer

Dr. Ramon Heimerl, Vice President
Colorado State College

Participants

Dr. Gordon F. Culver
University of Nebraska

Dr. Inez Frink
Florida State University

Dr. Mildred Hillestad
Colorado State College

Dr. Harry Jasinski
University of North Dakota

Dr. Estelle L. Popham
Hunter College

Dr. Donald Tate
Arizona State University

Dr. George Wagoner
University of Tennessee

Dr. Max L. Waters
Brigham Young University

Consultants

Dr. Rashid Bashshur
University of Michigan

Dr. Ralph Smith
Eastern Michigan University

APPENDIX B1

A proposal for discussion purposes

Group B Research Topic

Delta Pi Epsilon Research Conference

I. Title of Project

A Qualitative Analysis of Secretarial Duties and Traits

II. Problem

A. Statement

Educational programs in the office administration area must reflect changes occurring in modern business if vocational competency for workers in this area is to be maintained. The purpose of this study is threefold: (1) to determine the duties performed by secretaries to businessmen and executives, (2) to find out what qualitites are conspicuously present in successful secretaries and absent in unsuccessful secretaries, and (3) to determine the quality of work required of secretaries by employers in various occupational groups.

B. Significance

1. Changes have occurred in the office administration area during the last decade. The preparation of secretarial workers must reflect the requirements of business if effective educational programs are to be developed.

2. The preparation of secretarial workers is the responsibility of many educational institutions. Coordination of training responsibilities can most efficiently be accomplished by analysis of requirements for vocational success.

3. Curriculum planning in individual educational institutions preparing secretarial workers must reflect the requirements and changes occurring in business. Textbooks and other curriculum materials should be based on valid data that reflect the duties and traits necessary for secretarial success.

4. Data concerning the quality of work required of secretarial workers in the performance of responsibilities are essential if educational institutions are to prepare competent workers.

5. Secretarial competence has a national and international market. There is no indication that the supply of competent secretaries in the foreseeable future will meet the demand. Consequently, it is imperative that a study be initiated that will quantitatively and qualitatively determine the requirements for success in this field.

III. Objectives

The purpose of this study is to determine the duties performed by secretaries and to find out what qualities are present in successful secretaries and absent in unsuccessful secretaries. These data are necessary in order to develop educational programs for secretaries that will meet the requirements of modern business; specifically, answers must be obtained for the following:

A. The training received by secretaries that prepared them for their work and general information concerning their occupational roles.

B. Employment information such as first job, positions held, salary received, present position, and future plans.

C. Differences in responsibilities when changing to a different position.

D. Responsibilities secretaries could handle but are not assigned.

E. Decision making responsibilities of secretaries:

1. Advice and opinion on important matters
2. Deciding questions for other members of the office force

F. Identification of responsibilities that may be considered headwork as opposed to manipulative work

G. Identification of the qualitites, duties, and responsibilities secretaries have in their work

H. Identification of the duties and responsibilities secretaries have which they consider the most difficult to learn and the easiest to learn. This includes not only the duties which they are now performing but also those duties they have performed in any office position

I. Identification of the duties that secretaries believe must be learned on the job; that is, for which no school training can be given, and those duties for which training can be given in school

J. Quality of work required of secretaries by employers in various occupational groups

K. Employers' requirements of secretaries

IV. Procedure

A. General Design

1. Population

Two principal groups are to be studied:

a. Secretaries in various occupational classifications
b. Employers of secretaries in various industries

Description: The persons to be interviewed are to be selected first according to occupational distribution. This distribution will be based on occupational statistics found in the latest United States Cesnus Report and will be broken down into: (1) general business, (2) institutional, (3) professional, (4) governmental.

The number of interviewees drawn from each group will be allocated in proportion to the number of secretaries and employers in each field. The individual secretaries and employers chosen within each field will be selected because they are considered to be superior secretaries or outstanding businessmen.

B. Structured interviews by trained interviewers

1. Depth interviews will be held with selected secretaries and employers to secure data.

2. Appropriate interview instruments will be designed and field tested.

C. Appropriate questionnaires will be designed

Description: A tentative list of secretarial duties will be obtained from persons familiar with the duties of secretaries. Additional duties will be added by means of interviewing secretaries and employers.

A selected sample of secretaries interviewed will be requested to fill out time charts for each day's activities. These charts will be divided into five-minute intervals so that all activities will be included. The charts will cover the six working days of the week, on which each day will be divided into ten periods of one hour each, from 8 a.m. to 6 p.m. These hour periods will again be divided into intervals of quarter-hours, with one line allowed for each five-minute period within the quarter-hour. Secretaries will be instructed to fill in the chart four times a day, probably once in the middle of the morning, again at noon, once in mid-afternoon and finally before leaving the office, keeping notes in the meantime in order to fill in the blanks completely. They will be urged to list every duty, no matter how seemingly unimportant, since the goal is the most complete list possible.

In cases where interviews cannot be held, a list of the duties will be sent to the secretary for the purpose of checking the duties already on the list and adding others. A final duty list will be prepared from the duty sheets of those not interviewed and the master sheets of the interviewers. This duty list will be sent to a stratified random sample of secretaries.

D. Analysis

The results will be classified by education occupation, and frequency of performance. Tables will be prepared to indicate the following:

1. Frequency ranking of the duties

2. Frequency ranking of duties according to the occupation of the employer.
3. Frequency ranking of duties according to the school education of secretaries.

4. A tabulation of the number of duties carried on by individual secretaries.
5. A study of the difficulty and ease of learning the duties.
6. A study of the duties best learned on the job as against duties best learned in school.

Methods to qualitatively measure work performed by secretaries and requirements of employers will be devised.

E. Time Schedule

F. Dissemination of Outcomes

V. Personnel

VI. Facilities

VII. Budget

VIII. Reports

IX. Identification

APPENDIX B2

RESEARCH PROGRAM

SUBMITTED TO THE U.S. COMMISSIONER OF EDUCATION
UNDER THE PROVISIONS OF SECTION 4(C)
OF THE VOCATIONAL EDUCATION ACT OF 1963

PROJECT TITLE*	THE TITLE SHOULD BE CONCISE, DESCRIPTIVE, AND AS SPECIFIC AS POSSIBLE. AVOID TECHNICAL TERMS THAT ARE OBSCURE. TITLE SHOULD NOT EXCEED 150 TYPEWRITTEN SPACES.
APPLICANT:	(NAME OF APPLICANT AGENCY OR ORGANIZATION)
ADDRESS:	(ADDRESS)
TELEPHONE NUMBER:	(TELEPHONE NUMBER)
INITIATED BY:	(NAME, POSITION, MAILING ADDRESS, AND TELEPHONE NUMBER OF THE INDIVIDUAL WHO INITIATED THE PROPOSAL, ORDINARILY THE PRINCIPAL INVESTIGATOR)
PRINCIPAL INVESTIGATOR:	(REQUIRED ONLY IF DIFFERENT FROM INITIATOR)
SUBMITTED BY:	(NAME AND POSITION OF THE OFFICIAL WHO IS APPROVING THE SUBMITTAL OF THE APPLICATION. THIS MUST BE SOMEONE IN A POSITION TO ASSUME SUCH AUTHORITY AND TO COMMIT THE INSTITUTION OR AGENCY TO THE UNDERTAKINGS PROJECTED IN THE PROPOSAL. IF THE APPLICATION IS SUBMITTED JOINTLY BY TWO OR MORE AGENCIES, APPROVAL BY EACH IS REQUIRED.

IN ADDITION TO THE TYPED NAMES ON THE ORIGINAL OR MASTER COPY, THE PROPOSAL SHOULD BE SIGNED BY EACH INDIVIDUAL MENTIONED ABOVE.

FEDERAL FUNDS REQUESTED:	$_____
DURATION:	BEGINNING (DATE) ENDING (DATE) TOTAL NUMBER OF MONTHS REQUIRED: _____ MONTHS
DATE TRANSMITTED:	_____

- -

*Committee B Title: FACTORS ASSOCIATED WITH SUCCESSFUL ADAPTATION TO THE SECRETARIAL-STENOGRAPHIC ROLE

Factors Associated with Successful Adaptation to the Secretarial-Stenographic Role

I. The Problem: The identification and description of "good" stenographers/secretaries[1] (hereinafter referred to as S/S) go hand in hand with curricular development and the education of S/S. In a very real sense, the quality of stenographic/secretarial education is tied to the quality and extent of research findings which are available for the building of educational programs.

This is a proposal for a pilot study based on interactionistic point of view with the anticipation that such an interactionistic analysis of the secretarial role will produce findings that will: (1) serve as a basis for revision and updating of current curricula for stenographic/secretarial education in other than baccalaureate programs, and (2) focus attention upon the work setting and various situational variables which contribute to stenographic/secretarial success or failure. If attention is to be directed to those characteristics which are associated with successful secretarial performance, assuredly attention must also be directed simultaneously to those group structures and processes which are directly related to the performance of stenographic/secretarial activities.

At the present time stenographic/secretarial training programs rest heavily upon the classic study by Charters and Whitley[2] which was reported in 1924. Subsequent studies have only served the primary purpose of updating the list of duties and traits set forth in the original study. The basic pattern of all previous studies still remains; that is, a "trait" analysis which provides a list of secretarial duties and then determines the personal qualities or traits that are present in successful S/S, but which are absent in unsuccessful S/S.

While the Charters and Whitley Study was an important contribution for its time, considerable advances in social psychology, sociology, group dynamics, and related disciplines have tended to outmode the simple "trait" type of analysis. For instance, interactionistic models of the type described by Cartwright and Zander in their Group Dynamics[3] demonstrate the advantages for role theory, social organizational concepts, and interactionistic research models. The secretarial role does not exist in vacuo but is carried out in various kinds of groups and settings. Therefore, a major assumption

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[1] S/S are those employees who produce typewritten copy (1) from dictation (either from notes or from a machine), (2) from her own composition, or (3) from oral directions.

of this study is that successful adaptation to the secretarial role[4] is a function not only of training or of personality and character traits of the role occupant, but is also related to the structure and processes of the group and the setting in which the secretarial/stenographic activities are carried out.

2. Related Research or Background Information: To be completed by the person designated as Principal Investigator.

3. Objectives: To play the role of stenographer/secretary successfully involves the fulfillment of expectations associated with this role. At least three basic perspectives must therefore be invoked: (1) those expectations of secretarial behavior which are held by the S/S superiors; (2) those expectations of secretarial/stenographic behavior which are held by the S/S's peers; and (3) behavioral expectations of the secretarial role held by the secretary herself. To play the secretarial/stenographic role satisfactorily thus involves adjustments to these three sets of expectancies. A MAJOR ASSUMPTION OF THIS STUDY IS THAT THE STENOGRAPHIC/SECRETARIAL ROLE IS SAID TO BE DISCHARGED SUCCESSFULLY WHEN CONSENSUS EXISTS FROM THESE THREE PERSPECTIVES THAT A GIVEN S/S IS PERFORMING ADEQUATELY OR WELL IN HER ROLE.[5]

In brief, the major behavior (or "independent variable") with which this study is concerned is degree of "stenographic/secretarial success" consensually defined. Among the kinds of variables which are to be related to successful adaptation to the stenographic/secretarial role are the following:

1. General educational background, special vocational preparation, and occupational experiences of S/S.
2. Personality characteristics of the S/S.
3. Social characteristics of the S/S.
4. Characteristics of the group and the setting in which the S/S work.
5. Stenographic/secretarial skills and knowledges.

---

[4]"Secretarial/stenographic" role refers to duties and exptected BEHAVIORS WHICH ARE ANTICIPATED OF THOSE PERSONS WHO OCCUPY THE POSITION "STENOG_ RAPHER" OR "SECRETARY."

[5]It might be noted that the aforementioned definition is not an "objective" one in the sense that it stresses skill accomplishments. It is a "normative" one which centers on adaptations to the entire work group setting.

The major problem to be explored in this study concerns the extent to which these four types of variables are associated with degree of stenographic/secretarial success.

4. Procedures:

a. General Design

(1) Measure of the "Independent Variable": degree of successful adaptation to the stenographic/secretarial role. A consensual measure of degree of stenographic/secretarial success will be obtained by asking the following questions:

The S/S's supervisors will be asked:

"If you had to get along in your department for a month as best you could with just half of your present stenographic/secretarial staff, which S/S employees would you choose?"

Stenographic/secretarial employees will be asked three questions:

1. "If your department had to get along for a month as best it could with just one-half of the present S/S employees, which one-half would you choose, omitting yourself from this list?"

2. "If your supervisor had to make the decision to get along for a month with only one-half of his S/S employees, would he include you?"

3. "If the other S/S employees in your department (or group) had to make the decision to get along for a month with only half its present employees, would the other members of the department include you?"

(2) The Stenographic/Secretarial Adaptation Scale (S/SAS)

From the above questions, a Stenographic/Secretarial Adaptation Scale will be devised which will serve as the "Independent variable" throughout the study. It will provide the following categories, defined by level of concensus:

SUCCESSFUL S/S EMPLOYEES AS DEFINED BY:

1. Supervisors, peers, and self
2. Supervisors and peers
3. Supervisors and self
4. Peers and self
5. Supervisors only
6. Peers only
7. Self only
8. No one

(3) The "dependent variables": The major analyses of the study will be directed to a discovery of those "dependent" variables which bear a significant relationship to the above eight place S/SAS. The types of dependent variables to be so manipulated have been described on page 2. They include: educational and vocational training and background of the S/S's and of the supervisors; personality characteristics of the S/S's and of the supervisors; social characteristics of the S/S's and of the supervisors; structural and social organizationsal properties of the groups studied (e.g., closeness of supervision, size and type of organization, etc.)

(4) Group Characteristics: Another type of analysis which would center about those group properties which bear a relationship to the independent variable (i.e., the S/SAS) could be developed in greater detail at a later point. This analysis will only be lightly touched upon in this study. For instance, in some groups, a great deal of uniformity and agreement will probably exist among the supervisors and the /S's concerning who are the best secretaries. These may be labeled the high-cohesion (Hi-Co) groups. In contrast, one might anticipate greater disagreement in the evaluations of S/S employees submitted by the supervisors and the employees in other groups. By labeling this situation as low-cohesion (LO-Co), one could measure and compare S/S ratings and performance in the low-cohesive and the high-cohesive groups.

Further analyses of group differences in the S/SAS ratings could involve utilization of several variables common to research in industrial sociology. For instance, closeness of employee supervision has proved to be a significant variable

related to work performance in both the Prudential Life Insurance Study and in the Detroit Edison Company study conducted by the University of Michigan's Institute of Social Research.[6]

The following will be explored: (1) the size of the work group, (2) the size of the organization of which work group is a part, (3) the type of organizational structure of which the S/S employees are a part, and (4) supervisory practices in relation to group cohesion and the S/SAS. For instance, as in the General Mills Study, the situation in which the supervisor demands personal loyalty of his employees will be compared with the situation in which the supervisor does not demand such personal loyalty.

b. Population and Sample

Because this is a pilot study, ten medium-sized work groups can adequately serve as the central point of *analysis*. These groups will consist of a supervisor (or supervisors) and ten-to-fifty secretarial/ stenographic employees directly under him. The work groups should be selected from manufacturing settings. The S/SAS scale and a schedule designed to elicit the previously described dependent variables will be administered to both supervisors and S/S employees.

Work groups of various sizes will be selected from manufacturing firms. Some groups of 10-15 S/S's could be compared to groups of 20-25, 30-35, and so forth.

The research site and the specific groups to be analyzed remains to be selected.

c. Data and Instrumentation

The independent variable and the proposed instrument to measure it (the S/SAS Scale) has previously been described. The following data related to the dependent variables will be gathered:

---

[6]See Rensis Likert, New Patterns of Management.

1. Social characteristics: Age, sex, marital status, children, family life cycle stage, race, ethnicity, income, residential experience, etc.

2. Personality (perhaps some selected items from the Minnesota Multiphasic Personality Inventory or some other inventory).

3. Education: training and/or experience

4. Secretarial-stenographic skills and knowledge (by an instrument such as National Business Entrance Exams).

5. Closeness of S/S Supervision (use questions devised from ISR Studies).

6. Personal Loyalty to Supervisor (use questions employed in General Mills Study).

d. Analysis

Analytical focus will be upon the relationships which occur between the independent variable (as measured by the Secretarial/Stenographic Adaptation Scale) and the previously described sets (types of dependent variables).

e. Time Schedule

To be completed by person designated as Principal Investigator

5. Personnel: To be completed by the person designated Principal Investigator.

6. Facilities: To be completed by the person designated Principal Investigator.

7. Other Information: To be completed by person designated Principal Investigator.

8. Consideration by State Board for Vocational Education: To be completed by the person designated Principal Investigator.

9. Budget: To be completed by the person designated Principal Investigator.

APPENDIX B3

RESEARCH PROGRAM

SUBMITTED TO THE U. S. COMMISSIONER OF EDUCATION
UNDER THE PROVISIONS OF SECTION 4(C)
OF THE VOCATIONAL EDUCATION ACT OF 1963

PROJECT TITLE: Factors Associated With Successful Adaptation to The Secretarial-Stenographic Role

APPLICANT: Wayne State University

Address: Detroit, Michigan 48202

Telephone Number: Area Code 313 833-1400

INITIATED BY:
Fred S. Cook, Chairman
Department of Business & Distributive Education
College of Education
Wayne State University
Detroit, Michigan 48202

Area Code 313 833-1400, Ext. 7162

TRANSMITTED BY:
Olin Thomas, Vice-President and Treasurer
Office of The Treasury
Wayne State University
Detroit, Michigan 48202

Area Code 313 833-1400, Ext. 333

FEDERAL FUNDS REQUESTED: $92,609.00

DURATION: 1 January 1966 to 31 December 1967: 24 Months

DATE TRANSMITTED: August 27, 1965

Olin Thomas

OLIN THOMAS, Vice-President
and Treasurer
Office of The Treasury

Fred S Cook

FRED S. COOK, Chairman
Department of Business and
Distributive Education

ABSTRACT

A. SUBMITTED BY:

College of Education
Wayne State University
Detroit, Michigan 48202

B. PRINCIPAL INVESTIGATOR:

Fred S. Cook, Chairman
Business & Distributive Education
College of Education
Wayne State University
Detroit, Michigan 48202

C. TITLE: Factors Associated With Successful Adapation to The Secretarial/Stenographic Role

D. OBJECTIVES: The identification and description of "good" secretaries/stenographers go hand in hand with curricula development and the education of secretaries/stenographers. This is a proposal for a pilot study based on an interactionistic point of view with the anticipation that such analysis of the secretarial role will produce findings that will 1) serve as a basis for revision and updating of current curricula for secretarial/stenographic education, 2) focus attention upon the work setting and various situational variables which contribute to secretarial/stenographic success or failure.

To play the role of the secretary/stenographer successfully involves the fulfillment of expectations associated with this role. At least three basic perspectives must be studied: 1) Those expectations of secretarial behavior which are held by the secretaries/stenographer's supervisors; 2) by the secretaries/stenographer's peers; and 3) by the secretary herself.

The major behavior (or variable) with which this study is concerned is degree of "secretarial/stenographic success," consensually defined. Among the kinds of variables which are to be related to successful adaptation to the secretarial/stenographic role are the following: 1) General educational background, special vocational preparation, and occupational experiences of secretaries/stenographers; 2) secretarial/stenographic skills and knowledges; 3) personality characteristics of the secretaries/stenographers; 4) social characteristics of the secretaries/stenographers; and 5) characteristics of the group and the setting in which the secretaries/stenographers work.

E. PROCEDURES: A sample survey design utilizing structured interviews is planned for this study. The major variable to be explored is the degree of successful adaptation to the secretarial/stenographic role. A consensual measure of degree of secretarial/stenographic success will be obtained by administering questionnaires to the S/S's supervisors and the S/S employees. A Secretarial/Stenographic Adaptation Scale (S/SAScale) will be devised from data collected from the interviews.

The major analyses of the study will be directed to a discovery of those variables which bear a significant relationship to the Secretarial/Stenographic Adaptation Scale. These variables include educational and vocational background, personality characteristics, social characteristics of the secretaries/stenographers and of the supervisors; and, structural and social organizational properties of the groups studied (e.g., closeness of supervision, size and type of organization, etc.).

F. TIME SCHEDULE: 24 Months, beginning 1 January 1966 and ending 31 December 1967.

G. BUDGET: $92,609.00 (Total Federal Funds Requested)

INTRODUCTION

The present proposal is the result of a National Research Training Conference held by Delta Pi Epsilon--a graduate business education honorary fraternity--in Detroit, Michigan during March 1965. The purpose of the Conference was to upgrade research in business education and to develop a fundable research proposal. Twenty members of the fraternity who direct graduate research in business education worked in two groups for three days under the direction of four specialists in research. Each group prepared a research proposal.

Dr. F. Kendrick Bangs, a member of the Delta Pi Epsilon Research Committee, has already submitted a proposal that was developed at the Training Conference. His proposal is "CURRICULA IMPLICATIONS OF AUTOMATED DATA PROCESSING FOR EDUCATIONAL INSTITUTIONS" and was submitted in May.

A draft of a proposal similar to this one was submitted to the National Officers of Delta Pi Epsilon with the suggestion that they ask one of the members of the Conference to accept the responsibility as Principal Investigator to prepare a research proposal to submit for funding. Dr. Fred S. Cook, Chairman of the Delta Pi Epsilon National Research Committee, was asked to be the Principal Investigator; and Sue M. Smock, one of the four participating specialists at the Conference, was asked by Dr. Cook to be the Research Associate.

The participants were concerned with the need for adequately preparing young women to enter the stenographic/secretarial occupation. They were aware of the significant changes that have and are currently taking place in the business office. They believe there is a need for similar changes in the training of secretarial/stenographic students.

They were equally aware, however, of the lack of new substantive data concerning the potentially changing role of secretaries/stenographers--data that could and should be based upon current research techniques utilizing new methods in the field of social psychology, sociology, group dynamics, and related disciplines. This study is intended as a contribution to this body of needed research so that appropriate curriculum innovations can be developed.

FACTORS ASSOCIATED WITH SUCCESSFUL ADAPTATION TO THE SECRETARIAL-STENOGRAPHIC ROLE

STATEMENT OF THE PROBLEM:

The identification and description of "good" secretaries/stenographers[1] (hereinafter referred to as S/S) go hand in hand with curricular development and the education of S/S. In a very real sense, the quality of secretarial/stenographic education is tied to the quality and extent of research findings which are available for the building of educational programs.

This is a proposal for a pilot study based on an interactionistic point of view with the anticipation that such analysis of the secretarial role will produce findings that will:

1) Serve as a basis for revision and updating of current curricula for secretarial/stenographic education in other than baccalaureate programs, and

2) Focus attention upon the work setting and various situational variables which contribute to secretarial/stenographic success or failure.

While past attention has been directed to individual and personal characteristics which are associated with successful secretarial performance, attention must also be directed simultaneously to those properties of the group and the work situation which are directly related to the performance of secretarial/stenographic activities.

At the present time secretarial/stenographic training programs rest heavily upon the classic study by Charters and Whitley[2] which was reported in 1924. Subsequent studies have only served the primary purpose of updating the list of duties and traits set forth in the original study. The basic pattern of all previous studies still remains; that is, a "trait" analysis which provides a list of secretarial duties together with a delineation of the personal qualities or traits that are present in successful S/S's but which are absent in unsuccessful S/S's.

---

[1] S/S are those employees who produce typewritten copy (1) from dictation (either from notes or from a machine), (2) from her own composition, or (3) from oral directions.

[2] W. W. Charters and I. B. Whitley, Analysis of Secretarial Duties and Traits (Baltimore, Maryland: Williams and Wilkens Company, 1924--Out of Print).

The secretarial role does not exist in vacuo but is carried out in various kinds of groups and settings. Therefore, a major assumption of this study is that successful adaptation to the secretarial role[3] is a function not only of training or of personality and character traits of the role occupant, but is also related to the structure and processes of the group and the setting in which the secretarial-stenographic activities are carried out.

RELATED RESEARCH OR BACKGROUND INFORMATION:

While the Charters and Whitley Study was an important contribution for its time, considerable advances in social psychology, sociology, group dynamics, and related disciplines have tended to outmode this simple "trait" type of analysis. Hence, related research to the proposed project can be divided into two major areas: a) Research from business education sources, and b) research from social psychological and sociological sources.

a) As previously indicated the major literature in this area evolved from the follow up studies utilizing the methodology developed by Charters and Whitley in 1924. Because these studies followed the research procedures developed by Charters no substantive new findings have been reported. These studies include the following:

1. Frederick G. Nichols, The Personal Secretary, Cambridge, Mass., Harvard University Press, 1934.

2. Irene G. Place, The Personal Secretary: A Study of Personal Secretaries In Sixteen Communities In the State of Michigan. Report 12, Bureau of Business Research, University of Michigan, Ann Arbor, Michigan, 1946.

3. Elizabeth T. Van DerVeer, Patterns of Performance for the Most Frequent Duties of Beginning Clerical Workers, Alpha Chapter, Delta Pi Epsilon, New York University, 1952.

4. Herbert A. Tonne, The Analysis of Secretarial Duties Thirty Years Later (Abstract), New York University, 1954.

3"Secretarial/stenographic role refers to duties and expected ***BEHAVIORS WHICH ARE ANTICIPATED OF THOSE PERSONS WHO OCCUPY THE POSITION OF "SECRETARY" OR "STENOGRAPHER."***

A fifth study completed in 1964 and utilizing the methodology of Charters (1924) and Nichols (1934) produced similar results. This similarity in results of these three studies is apparently due to methodology which is inappropriate at this time.

b) The theoretical guidelines of this research come primarily from the words of social psychologists. The works of George H. Mead[4] and Erving Goffman[5] have well demonstrated the significance of social interaction in the performance of various roles. An excellent presentation of this theoretical point of view is found in: Theodore M. Newcomb, Social Psychology, New York; Holt, Rinehart, and Winston (1965).

While no social psychological studies have dealt specifically with the interactive patterns related to the performance of secretarial roles, several researches bear a relationship to the study perspectives. Interactionistic models of the type described by Dorwin Cartwright and Alvin Zander in Group Dynamics: Research and Theory (New York: Harper and Row Publishers, Second Edition, 1960) demonstrate the application of role theory, social organizational concepts, and interactionistic research models. One of the specially relevant studies reported in this volume was conducted by Robert Kahn and Daniel Katz on "Leadership Practices in Relation to Productivity and Morale." This study shows the relation of section productivity to closeness of supervision of employees, and also to the closeness of supervision of section head by supervisor.

Since 1952, Donald C. Pelz, and Frank M. Andrews, and their associates at the University of Michigan have conducted a series of studies on social factors related to performance of scientists and engineers in various work situations. The various procedures used in these studies will be reviewed for possible adaptation to this research. A major publication on their research is now

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[4]For a general review of George H. Mead; see Anselm Strauss, Editor, George Herbert Mead on Social Psychology, The University of Chicago Press, Revised Edition, 1964.

[5]Erving Goffman, The Presentation of Self in Everyday Life, Edinburgh, Scotland: University of Edinburgh, 1956.

in print. The following is a selection from the various published works on this research:

D. C. Pelz, "Some Social Factors Related to Performance in A Research Organization." Administrative Science Quarterly, pp. 310-325, 1956.

_____ "Social Factors in The Motivation of Engineers and Scientists," School Science and Mathematics, pp. 417-429, 1958.

D. C. Pelz and F. M. Andrews, "Organizational Atmosphere Motivation and Research Contribution," American Behavioral Scientist, pp. 43-47, 1962.

Of the other published research which have potential relevance to this proposed study are the following:

1. Paul R. Laurence, The Changing of Organizational Behavior Patterns, Boston, Harvard University, 1958.

2. William E. Henry, "The Business Executive: A Study of The Psychodynamics of a Social Role," in H. Brand Editor, The Study of Personality, New York: Wiley and Sons, 1954.

3. Alvin Gouldner, Patterns of Industrial Bureaucracy, Glencoe, Illinois: Free Press, 1954.

4. Nancy Morse and Everett Reimer, "The Experimental Change of A Major Organizational Variable," Journal of Abnormal and Social Psychology, pp. 120-129, 1956.

5. Theodore M. Newcomb, "The Study of Consensus," in Robert Merton, et al. Sociology Today: Problems and Prospects, Basic Books, pp. 279-292, 1959.

OBJECTIVES:

TO PLAY THE ROLE OF SECRETARY/STENOGRAPHER SUCCESSFULLY INVOLVES THE FULFILLMENT OF EXPECTATIONS ASSOCIATED WITH THIS ROLE. At least three basic perspectives must therefore be invoked:

1. Those expectations of secretarial behavior which are held by the S/S's superiors;

2. Those expectations of secretarial/stenographic behavior which are held by the S/S's peers; and

3. Behavior expectations of the secretarial role held by the secretary herself.

To play the secretarial/stenographic role satisfactorily thus involves adjustments to these three sets of expectancies. ***A MAJOR ASSUMPTION OF THIS STUDY IS THAT THE SECRETARIAL/STENOGRAPHIC ROLE MAY BE SAID TO BE DISCHARGED SUCCESSFULLY WHEN CONSENSUS EXISTS FROM THESE THREE PERSPECTIVES THAT A GIVEN S/S IS PERFORMING ADEQUATELY OR WELL IN HER ROLE.***[6]

In brief, the major behavior (or variable) with which this study is concerned is degree of "secretarial/stenographic success," consensually defined. Among the kinds of variables which are to be related to successful adaptation to the secretarial/stenographic role are the following:

1. General educational background, special vocational preparation, and occupational experiences of S/S.

2. Stenographic/secretarial skills and knowledges.

3. Personality characteristics of the S/S.

4. Social characteristics of the S/S.

5. Characteristics of the group and the setting in which the S/S's work.

The major problem to be explored in this study concerns the extent to which these five types of variables are associated with degree of secretarial/stenographic success.

PROCEDURES:

A. General Design

1. The major variable to be explored is degree of successful adaptation to the secretarial/stenographic role. A consensual measure of degree of secretarial/stenographic success will be obtained by asking the following questions:

The S/S's supervisors will be asked:

"If you had to get along in your department for a month as best you could with just half of your present

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[6] It might be noted that the aforementioned definition is not an "objective" one in the sense that it stresses skill accomplishments. It is a "normative" one which centers on perceived adaptations to the on going work group setting.

secretarial/stenographic staff; which S/S employees would you choose?"

Secretarial/stenographic employees will be asked three questions:

1. "If your department had to get along for a month as best it could with just one-half of the present S/S employees, which one-half would you choose, omitting yourself from this list?"

2. "If your supervisor had to make the decision to get along for a month with only one-half of his S/S employees, would he include you?"

3. "If the other S/S employees in your department (or group) had to make the decision to get along for a month with only half its present employees, would the other members of the department include you?"

2. Using the Secretarial/Stenographic Adaptation Scale (S/SAScal

From the above questions the S/S ranking will be placed on the following S/SAScale. This scale will provide the following categories, defined by level of consensus:

SUCCESSFUL S/S EMPLOYEES AS DEFINED BY:

1. Supervisors, peers, and self
2. Supervisors and peers
3. Supervisors and self
4. Peers and self
5. Supervisors only
6. Peers only
7. Self only
8. No one

3. The major analyses of the study will be directed to a discovery of those variables which bear a significant relationship to the above eight categories on the S/SAScale. The types of variables to be so manipulated have been described on page 2. They include: Educational and vocational training and background of the S/S's and of the supervisors; personality characteristics of the S/S's and of the supervisors; social characteristics of the S/s's and of the supervisors; structural and social organizational properties of the groups studied (e.g., closeness of supervision, size and type of organization, etc.).

4. Group Characteristics: Another type of analysis which would center about those *group* properties which bear a

relationship to the variable (i.e., the S/SAScale) *could be developed in greater detail at a later point. This analysis will only be lightly touched upon in this study.* For instance, in some groups, a great deal of uniformity and agreement will probably exist among the supervisors and the S/S's concerning who are the best secretaries. These may be labeled the high-cohesion (Hi-Co) groups. In contrast, one might anticipate greater disagreement in the evaluations of S/S employees submitted by the supervisors and the employees in other groups. By labeling this situation as low-cohesion (Lo-Co), one could measure and compare S/S ratings and performance in the low-cohesive and the high-cohesive groups.

Further analyses of group differences in the S/SAScale ratings could involve utilization of several variables common to research in industrial sociology. For instance, closeness of employee supervision has proved to be a significant variable related to work performance in both the Prudential Life Insurance Study and in the Detroit Edison Company Study conducted by the University of Michigan's Institute of Social Research.[7]

The following will be explored: (1) the size of the work group, (2) the size of the organization of which work group is a part, (3) the type of organizational structure of which the S/S employees are a part, and (4) supervisory practices in relation to group cohesion and the S/SAScale. For instance, as in the General Mills Study, the situation in which the supervisor demands personal loyalty of his employees will be compared with the situation in which the supervisor does not demand such personal loyalty.

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[7]See Rensis Likert, New Patterns of Management (New York: McGraw-Hill, 1961).

B. Population and Sample

Three types of work groups will be analyzed. These groups will consist of an immediate supervisor and the following numbers of S/S employees:

1. N of 200 drawn in *small size* work groups (i.e., three to five employees in each group, comprising 50 groups).

2. N of 200 drawn in *medium size* work groups (i.e., 10 to 15 employees in each group, comprising approximately 17 groups).

3. N of 200 drawn in *large size* work groups (i.e., 20 or more employees in each group, comprising a maximum of 10 groups).

These groups[8] will be selected from manufacturing concerns. Manufacturing has been selected to control the type of business and, further, to insure the availability of subjects within the survey area.

The *small, medium, and large* groups are delineated to assist in the analysis of work group as a performance related variable. Further exploration in this direction will consist of an application of the Katz and Kahn[9] type of analysis for closeness of supervision.

The research site will be in the Detroit Standard Metropolitan Statistical Area. Appropriate respondents will be selected from a panel currently cooperating on U.S.O.E. Project Number 2378 at Wayne State University.

C. Data and Instrumentation

The variable and the proposed instrument to measure it (the S/SAScale) has previously been described. The following data related to the other variables will be gathered:

1. Social characteristics: Age, sex, marital status, children, family life cycle stage, race, ethnicity, income, residential experience, etc.

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[8]Wherever applicable simple random sampling of work groups will be applied. However, it is anticipated that the usual problem will be finding sufficient numbers of work groups in which case no sampling will be employed.

[9]Op. cit.

2. Personality (i.e., the Minnesota Multiphasic Personality Inventory and/or some other inventory).

3. Clerical aptitude (i.e., the Minnesota Clerical Aptitude Test).

4. Education: Training and/or experience.

5. Secretarial/stenographic skills and knowledge (by an instrument such as the National Business Entrance Exams).

6. S/S related duties.

7. Closeness of S/S supervision (use questions devised from ISR studies; see Appendix A).

8. Personal loyalty to supervisor (use questions employed in the General Mills Study; see Appendix A).

9. Structural properties of the group (i.e., size of work group and community patterns).

D. Analysis

Analysis of the data will focus primarily on determining levels of association between the major variable of S/S success (as measured by the S/SAScale) and the various related variables of this study. The specific tests of association which will be employed will depend primarily on the type of scales entailed in the variables. It is anticipated that various non-parametric tests will be used. Partial and multiple correlations will be used wherever applicable. Analysis of covariance will be especially applicable to handle problems involving various combinations of interval and nominal scales.

Time and funds permitting, a multivariate analysis may be applied since this research would involve a large number of variables which may be intercorrelated. In this instance, the purpose will be to indicate one or more underlying factors which are variably related to the other variables.

Data will be presented in two forms:

1. Simple tables in which raw scores, frequency distributions, and percentages are provided; wherever sampling is employed, confidence intervals will be provided for estimating population values from sample statistics.

2. Correlational measures and other associational statistical measures to be provided as required by the analysis, and in keeping with the nature of the variables involved.

E. Time Schedule: 1 January 1966 through 31 December 1967

1. Twelve months to design and administer appropriate instruments, and

2. Twelve months to tabulate and analyze data, and write final research report.

PERSONNEL:

Principal Investigator: Fred S. Cook

Education

Undergraduate: Majored in Business Administration and Business Education. Graduated from Ohio Northern University "with distinction" in November 1946.

Graduate: Majored in Business Education, cognate work in Business Administration. M.A., University of Michigan, August 1948.

Ph.D., University of Michigan, February 1953. Dissertation: A Study to Determine the Predictive Value of the Detroit Clerical Aptitude Examinations.

Teaching Experience

1963- Department Chairman and Professor of Business Education, College of Education, Wayne State University.

1960-63 Department Chairman and Associate Professor of Business Education, College of Education, Wayne State University.

1955-60 Assistant Professor of Education, School of Education, Stanford University (in charge of Business Ed. and Audio-Visual Education), Stanford, Cal.

1952-55 Head, Business Education, Coe College, Cedar Rapids, Iowa

1953-54 Summer Sessions: Visiting Professor, School of Education, U. of Mich.

1948-52 University of Michigan:
1. Teaching fellow and critic teacher, University High School.
2. Lecturer in Education (Summer Sessions).
3. Instructor, School of Business Administration.

1947-48 Instructor, Business Administration, Ohio Northern University, Ada, Ohio.

Research Activities

Principal Investigator and/or Project Director of the following research programs since 1963:

OPPORTUNITIES AND REQUIREMENTS FOR INITIAL EMPLOYMENT OF SCHOOL LEAVERS WITH EMPHASIS ON OFFICE AND RETAIL JOBS. United States Office of Education Number 2378 (expires 31 December 1965). $ 0

OFFICE MACHINES USED IN BUSINESS TODAY. Funded by the Department of Public Instruction, Lansing, Michigan (expires September 1965). $ 0

(Fred S. Cook)

Cont.--Research Activities

THE NEED FOR EDUCATIONAL PROGRAMS IN BUSINESS DATA PROCESSING. Funded by the Department of Public Instruction, Lansing, Michigan (expires September 1965).

PROFESSIONAL SECRETARIAL STATUS SURVEY NO. 1. Funded by the National Secretaries Association, 1964-65 (completed May 1965).

STATUS OF HIGH SCHOOL DATA PROCESSING PROGRAM IN THE AMERICAN SECONDARY SCHOOL. Cooperative program with the South-Western Publishing Company (who distributed 70,000 instruments) and the National Research Committee of Delta Pi Epsilon.

A FOLLOW UP STUDY OF OFFICE CO-OP STUDENTS TWELVE YEARS AFTER GRADUATION (based upon students used in Doctoral Study).

Chairman of the National Research Committee of Delti Pi Epsilon and was instrumental in organizing a NATIONAL RESEARCH TRAINING CONFERENCE held in 1965. This Conference developed two research proposals in the field of office education which were submitted to the United States Office of Education for funding.

Organizations and Offices Held

Delta Pi Epsilon (member of Kappa Chapter, University of Michigan)

a. National Research Committee, Chairman, 1963 to present.
b. Business Teacher Recruitment Committee, Co-Chairman, 1954-56.
c. Faculty Sponsor, W.S.U. Chapter to be installed in October 1965.

North-Central Business Education Association, Second Vice-President, 1964-65.

National Secretaries Association, Director of Research and Education, 1960-.

California Business Education Association, State President, 1959-60.

Fund for The Advancement of Business Education. Helped organize this non-profit educational foundation. Chairman, Board of Governors, 1959-60.

National Office Management Association. Helped organize the Cedar Rapids and Sequoia Chapters and was Chapter President of both. National Director, Area 14, 1959-60.

Membership in Organizations

National Association of Supervisors of Business Education, National Business Education Association, Michigan Business Education Association, Phi Delta Kappa, Michigan Education Association, National Education Association.

(Fred S. Cook)

Other Professional Activities

Participated in many local, state, regional, and national professional meetings as a speaker and as a consultant.

Initiated and taught a course in beginning typewriting over an open circuit television station in San Francisco. This program was repeated in 1958.

Work Experience

Brief summary. Consultant: In-service training programs, office management, school construction and curriculum, 1952-65. Organized and conducted a national market survey on the economic feasibility of marketing teaching machines for a major United States corporation, 1959. Foundation for Economic Education Fellowship (helped organize a new department, set up procedures and forms, and was retained by the concern as an office management consultant), 1953-55. U. S. Army (worked with personnel records and was discharged with M/Sgt. rank), 1944-45. Worked as a material expediter for the Lima Locomotive Works, 1941-43.

Publications

Senior Author, Gregg Junior High Typing, Workbook and Teacher's Manual, published in 1959; Second Edition, May 1965.

Senior Author, Secretarial Techniques Manual, published in 1964 by The National Secretaries Association (International). 6

Editor, Secretarial Study Guide, published in 1963 by The National Secretaries Association (International). 0

Editor, Team Teaching Bibliography, mimeographed material, 1965. 0

Editor, Office Machines Bibliography, mimeographed material, 1965.

Over 50 articles published in: JOURNAL OF BUSINESS EDUCATION, BUSINESS EDUCATION WORLD, NATIONAL BUSINESS EDUCATION QUARTERLY, UNITED BUSINESS EDUCATION FORUM, BALANCE SHEET, CALIFORNIA BUSINESS EDUCATION NEWS, OFFICE EXECUTIVE, MICHIGAN BUSINESS EDUCATION NEWS BULLETIN, REMINGTON RAND'S SYTEM, BUSINESS TEACHER, Monthly Column in THE SECRETARY.

Author of Chapters in five Yearbooks published by the National Business Education Association. Editor of the 1967 Yearbook to be published by the National Business Education Association. This Yearbook will be devoted to Vocational Business Education.

Research Associate: Sue M. Smock

Education

Undergraduate: University of Illinois, 1947-1950. B.A., Sociology, Wayne State University, 1951.

Graduate: M.A., Sociology, Wayne State University, 1952-56.

Ten (10) hours credit toward Ph.D. taken at Wayne State University.

Teaching Experience

Part-time faculty, Henry Ford Community College, Social Science Division, September 1964 to present.

Part-time faculty, Institute for Labor and Industrial Relations, Wayne State University and University of Michigan. Coordinated and taught a seminar in Problems of Mass Transportation, February-April 1963.

Part-time faculty, Department of Sociology and Anthropology, Wayne State University, January 1957-June 1958.

I have taught specific sections of a number of courses. These concerned research methods or the content of particular research projects.

Work Experience

1965- Assistant Director for Surveys, Center for Urban Studies, University of Michigan, Dearborn, Michigan.

1964-65 Technical Director, Social Impact Study, Wayne State University.

1959-65 Chief Research Analyst, Urban Research Laboratory, Wayne State University.

1956-59 Chief Research Analyst, Detroit Area Traffic Study, Wayne State University.

1956 Field Supervisor, Older Worker Study, Wayne State University and Michigan Employment Security Commission.

1953-56 Research Assistant, Wayne State University.

1952-53 Supervisor, Public Relations Department, Revlon Corporation, New York City, New York.

1951 Assistant to Program Manager, KFI Radio Station, Los Angeles, California.

1950-51 Research Assistant, Wayne State University.

At various times, I have been a paid consultant for many types of research projects.

(Sue M. Smock)

Publications

"Social Change, Religion and Birth Rates" with Albert J. Mayer, The American Journal of Sociology, Vol. LXII, No. 4, January 1957.

Negro-White Intermarriage with Albert J. Mayer, mimeo., 1959.

"The Grand River Experiment," Community Values As Affected by Transportation: Highway Research Record, No. 2, Washington, D.C., National Academy of Sciences, National Research Council, 1963.

Consultant: The following vita on Dr. Ralph Smith indicates the type of social scientist we will be looking for as a design consultant.

Ralph V. Smith: Director for the Institute of Community and Educational Research, Eastern Michigan University, and Associate Professor of Sociology.

Education:

Ph.D. in sociology from the University of Michigan. Major prelim; Social Psychology. Minor prelims; Social Organization and Methodology.

Dissertation: "Areal Variation in Formal Association Membership in A Large Metropolitan Community."

Committee members: Chairman, Amos H. Hawley, Robert C. Angell, Howard Y. McClusky, and Horace Miner.

Occupational Experience:

Industrial: Two years as a cutter grinder at the Ford Motor Company. Three years as a supervisor of precision grinding at the Bendix Corporation. (Attended college on a part-time basis most of these years.)

Service: Aerographer in the U.S. Navy: July 1944 to November 1945.

Teaching: Teaching fellow, University of Michigan, 1947-48.

Assistant and then Associate Professor of Sociology, Eastern Michigan University, 1948 to present. (Served in the capacity of chairman most of these years.)

Research Experience:

Collaborated with Eleanor and Nathan Maccoby in a voting behavior study in Washtenaw County (1948).

Directed three community studies for school systems and civic agencies in Ypsilanti, one in Flint, Adrian, and Birmingham.

Conducted a statewidge study for Eastern Michigan University concerning a graduate program. Also, directed a statewide survey of a proposed teacher-certification code in Michigan.

Director: Community Structure and Support of Public Schools (Cooperative Research Project No, 1828).

Director (Full Time): A second study sponsored by the U. S. Office of Education "Community Support of The Public Schools in A Large Metropolitan Area" (CRP No. 2557), July 1964 to November 1966. This study is an ecological analysis of the effects of population deconcentration upon

(Dr. Ralph Smith)

Cont.--Research Experience

school support in the Detroit Standard Metropolitan Statistical Area. The relationship of selective migration and segregation patterns to school support are to be examined in four concentric zones: inner city, outer city, inner suburbia, and outer suburbia.

Works:

Areal Variations in Formal Association Membership in A Large Metropolitan Community (Ph.D. Dissertation, 216 pp.)

The Community Reports: A Study of Citizen Reaction to The Birmingham Public Schools (120 pp., multilithed and bound).

Community Organization and Support of The Schools (CRP No. 1828), multilithed and bound (133 pp.), Ypsilanti, Michigan: January 1964.

FACILITIES:

Facilities at Wayne State University are adequate for the performance of the proposed research project. The University has the computer services necessary for this project. Personnel will have offices in the College of Education.

OTHER INFORMATION:

1. Amount of support available from sources other than the Federal Government and Wayne State University: None Requested.

2. This proposal has not been submitted to any other agency or organization.

3. This proposal is not an extension of, or addition to, a program previously (or currently) supported by the Office of Education and conducted by Wayne State University.

4. This proposal has not been previously submitted to the Office of Education by Wayne State University.

CONSIDERATION BY STATE BOARD FOR VOCATIONAL EDUCATION:

This proposal has been reviewed and discussed with Mr. Robert M. Winger, Director of the Division of Vocational Education, Department of Public Instruction, Lansing, Michigan.

Mr. Winger has indicated that there is a great need for this kind of study, particularly as more and more schools are showing an interest in changing the stenographic secretarial curriculum. He also feels that the benefits of this study would assist in giving direction to these schools. This proposal has received the endorsement of Mr. Winger and his staff.

8-27-65:mm

Principal Investigator: [illegible] Date:

Coordinator:

	1 JANUARY 1966 TO 30 JUNE 1966	1 JULY 1966 TO 30 JUNE 1967	1 JULY 1967 TO 31 DECEMBER 1967	TOTAL: ALL YEARS
Principal Investigator, 1/4 time (including 10% annual increments)	$ 1,908	$ 4,199	$ 2,254	$ 8,361
Research Associate, 1/2 time at $7,500 per year	3,750	7,500	3,750	15,000
Research Assistant, 1/2 time at $4,500 per year	2,250	4,500	2,250	9,000
Secretary, full-time (including annual increments)	2,782	5,764	2,891	11,437
Graduate Assistant (40 hours per week at $2.00 per hour)	2,080	4,160	2,080	8,320
Fringe Benefits for Staff: 12%	1,283	2,636	1,337	5,256
Design Consultants: 30 Days at $100 per day	800	1,500	700	3,000
600 Instruments at $20 per Instrument	(Design & Testing)	(Administering Instruments and Analysis)	(Analysis)	12,000
Programming & Computer Time	-0-	1,200	800	2,000
Supplies and Materials (office supplies including postage and communication)	500	1,000	500	2,000
Travel (to professional meetings to report results)	200	400	200	800
University Overhead: 20%	3,111	8,972*	3,352	15,435
TOTALS	$18,664	$41,831	$20,114	$92,609

*$12,000 for interview instruments listed in total column was added with figures to obtain University overhead for period of 1 July 1966 to 30 June 1967.

Salary rates used in the computation of this budget are at the local rate of the institution.

[illegible]

APPENDIX A

APPENDIX A

Here is a sample of some of the questions that can be adapted for this research:

1. How often does your immediate supervisor have a "How Am I Doing?" talk or performance review with you? (Check one)

   (1) About every six months or oftener
   (2) About once a year
   (3) Less than once a year
   (4) Never had one

2. How do you feel about the way the Company handles individuals who are clearly unsatisfactory in the job they are doing? (Check one)

   (1) The Company is too tolerant with these people
   (2) The Company is somewhat tolerant
   (3) About right, neither too tolerant nor too harsh
   (4) The Company is somewhat harsh
   (5) The Company is much too harsh

3. How good a job is being done by the Company in taking you and your fellow supervisors into its confidence, explaining Company policies and plans and the reasons for them? (Check one)

   (1) Very Good
   (2) Quite good
   (3) Fairly good
   (4) Not very good
   (5) Poor

4. Do you feel supervisors in jobs like yours are a part of the real management of the Company? (Check one)

   (1) A very important part
   (2) A fairly important part
   (3) A part, but not important
   (4) A part in name only
   (5) No part at all

5. Do you think the management above you believes that delegation and the human side of management are really important and wants them to be used?
(Check one)

(1) Management is completely behind this
(2) Most of management is behind this
(3) Some are behind it, others are not
(4) Most of management is not behind this
(5) Management is not really behind it at all

6. How do you feel about staying on at___?
(Check one)

(1) ___ is my Company and I wouldn't leave unless I had to
(2) ___ is my Company but I think I'd leave for a substantially better job elsewhere
(3) I like it here, but I'd leave if a better job came along
(4) It doesn't matter much to me whether I stay at ___ or leave to take another job
(5) I want to leave ___ as soon as I get a chance to do so

7. For the type of work you are doing, how does the pay at ___ compare with other companies you might consider working for?
(Check one)

(1) Much better than most other companies
(2) Better than most
(3) About the same as most
(4) Poorer than most
(5) Much poorer than most other companies

8. How clearly do you understand the duties of your job?
(Check one)

(1) I am very clear about the duties of my job
(2) Quite clear on most things
(3) Fairly clear
(4) Not too clear
(5) I am not at all clear about the duties of my job

9. To what extent do you feel you can influence the activities and decisions of your immediate supervisor?
(Check one)

(1) To a very great extent
(2) To a considerable extent
(3) To some extent
(4) To a very little extent
(5) Can't influence him at all

10. Do you feel you have all the authority you need to get your job done effectively?
(Check one)

(1) I have too much authority
(2) I have all the authority I need
(3) I have enough authority for some things, not enough for others
(4) I have too little authority
(5) I have much too little authority

11. When you go to your immediate supervisor for a decision about something, how often do you get his decision promptly?
(Check one)

(1) Always get it promptly
(2) Usually
(3) Sometimes yes, sometimes no
(4) Seldom get it promptly
(5) Never get it promptly

12. Since you took your present job, have you received the kind of training and help you need to do the job well?
(Check one)

(1) I have received more than I need
(2) I have received about the right amount
(4) I haven't had enough
(5) I have had no training and help

13. About how often do you get to talk things over with your immediate supervisor--things about your work and your interests?
(Check one)

(1) As often as I want to
(2) Almost as often as I want to
(3) Somewhat less often than I want to
(4) Much less often than I want to
(5) Hardly ever; I rarely get to talk with him

14. When you have a suggestion about your work, or a complaint or grievance to make, does your immediate supervisor listen carefully and with interest to what you have to say?
(Check one)

(1) He always listens carefully
(2) Usually
(3) Sometimes
(4) Rarely
(5) Never listens carefully

15. On the whole, how does _ _ _ compare with other employers with respect to the benefit programs it provides?
(Check one)

(1) Among the best
(2) Better than most others
(3) About the same as most
(4) Not as good as most
(5) Much poorer than most

(9) I have no idea; can't judge

16. How important is it to you to know your salary grade and the range of your job?
(Check one)

(1) Of greatest importance
(2) Very important
(3) Fairly important
(4) Not too important
(5) Of no importance at all

17. When changes are coming up that will affect your work, are you told about them far enough in advance?
(Check one)

(1) Almost always told in advance
(2) Usually told in advance
(3) Sometimes yes, sometimes no
(4) Seldom told in advance
(5) Almost never told in advance

18. How well do you think unions and management get along at _ _ _ compared with other companies? (Check one)

(1) Much better than most
(2) A little better than most
(3) About the same as most
(4) A little poorer than most
(5) Much poorer than most

19. How satisfied are you with the way _ _ _ helps and encourages people to prepare themselves for promotion? (Check one)

(1) Very satisfied
(2) Fairly satisfied
(3) Neither satisfied nor dissatisfied
(4) Dissatisfied
(5) Very dissatisfied

20. On the job, do you feel any pressure for better performance <u>over and above what you yourself think is reasonable</u>? (Check one)

(1) I feel a great deal of pressure for better performance over and above what I think is reasonable
(2) Considerable pressure
(3) Some pressure
(4) A little pressure
(5) I feel no pressure at all for better performance over and above what I think is reasonable